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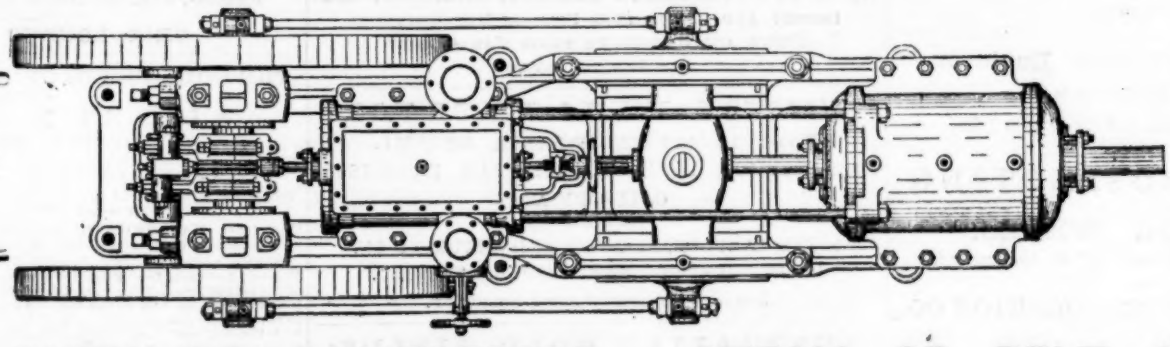

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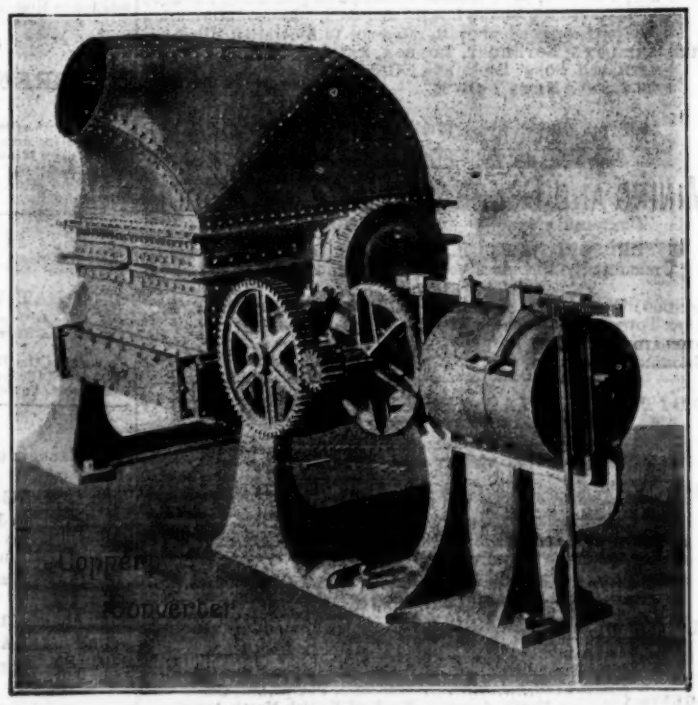

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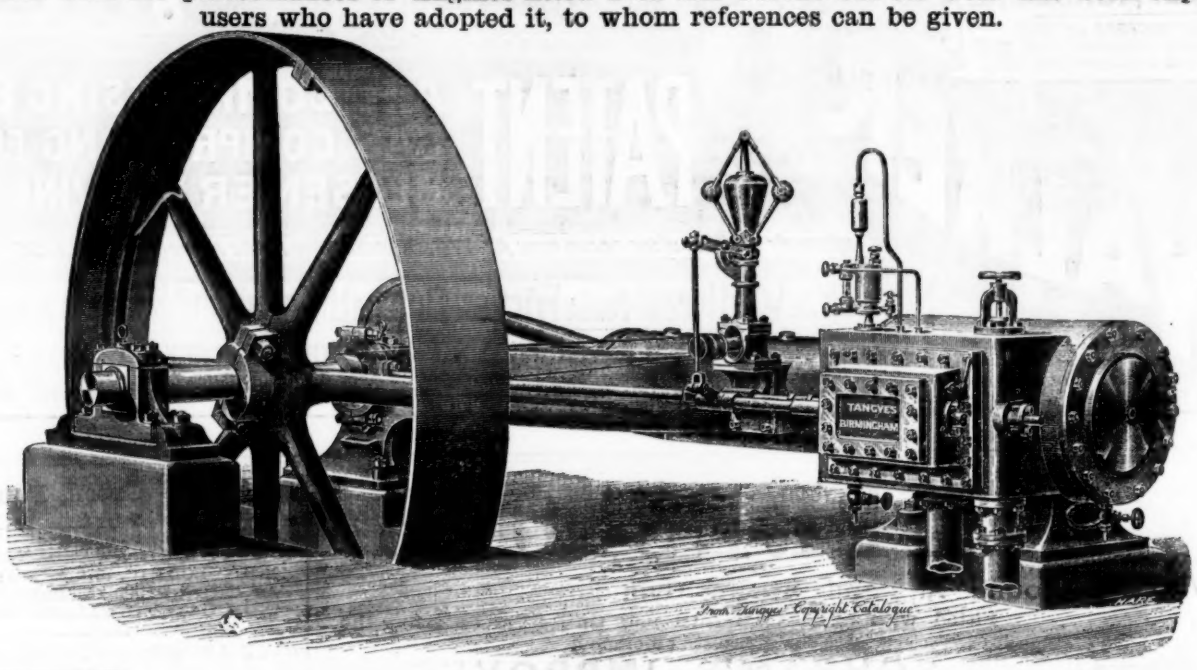

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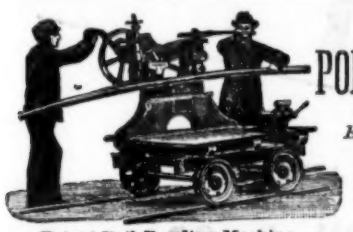
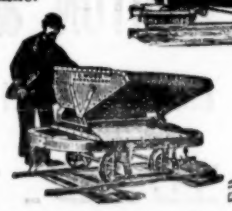
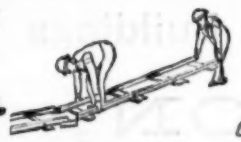
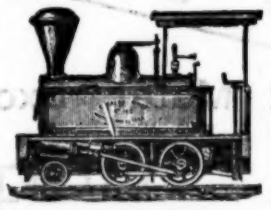

Patent Rail-Bending Machine.







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MANUFACTURERS OF ALL KINDS OF
Engine and Pump Packings, Indiarubber Goods, Asbestos Goods; Hair and Cotton Beltings.
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INDESTRUCTIBLE
VENTILATING FANS
FOR MINES, TUNNELS, &c.
CONSTRUCTORS OF THE VENTILATING MACHINERY AT THE SEVERN AND MERSEY TUNNELS.

PATENT ANTI-VIBRATION SHUTTER
Applicable to all enclosed Fans

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upwards of 400 of the above now AT WORK indicating in the aggregate 150,000 Horse-Power

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THIS GEARING IS NOW EXTENSIVELY IN USE FOR HAULAGE PURPOSES.
The objects attained are SIMPLICITY, ENDURANCE OF THE MACHINERY AND ROPES with a MINIMUM EXPENDITURE OF POWER.

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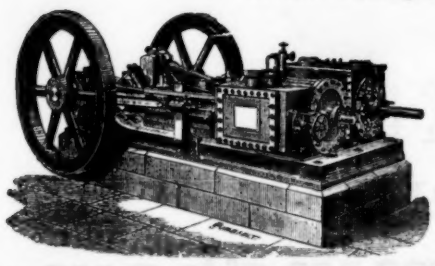
With Compound Air and Steam Cylinders,
Fitted with SCHRAM'S Inlet and Outlet Valves giving the greatest efficiency.



SCHRAM'S IMPROVED
Rock Boring Machines.
Supplied to the Indian, Colonial, and other Governments.
2500 IN USE in all PARTS of the WORLD.
DIAMOND PROSPECTING DRILLS.
"OPTIMUS" COMPOUND ROCK DRILL.
(P. J. OGLE'S PATENT.)
Consumes 40 per cent. less Compressed Air than any other Drill at the same time giving the most effectual results.
ESTIMATES AND FULL PARTICULARS ON APPLICATION.
RICHARD SCHRAM & CO., 17a, Great George Street, Westminster, S.W.
TELEGRAMS: "SCHRAM, LONDON," A1, A.B.C. and The Engineering Telegraph Codes Used.

Telegrams—Green, Foundry, Aberystwyth.

SILVER MEDALS AWARDED AT THE ROYAL CORNWALL POLYTECHNIC, 1872 & 1876; GOLD MEDAL AWARDED AT THE GREAT INTERNATIONAL MINING EXHIBITION, CRYSTAL PALACE, 1890.

ONLY AWARDS GIVEN FOR CONCENTRATION PLANTS

GEORGE GREEN'S PATENT
Self-Acting or Automatic Ore Dressing Machinery,
A Special Plant, on a reduced scale, has been erected at the Works by which samples of METALLIC ORES—up to Five Tons may be treated, and the commercial value determined, in this way the most suitable arrangement of Plant is ascertained, a considerable advantage to intending Purchasers of Crushing and Concentrating Plant.

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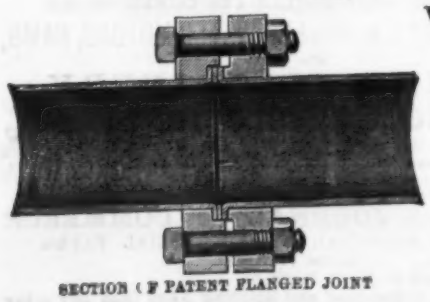
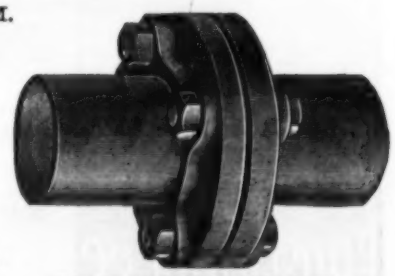


SECTION OF PATENT FLANGED JOINT

WROUGHT IRON WELDED TUBES and FITTINGS for GAS, WATER, and STEAM.
Light Lap-welded Wrought-iron and Steel Tubes
(SPECIALLY ADAPTED FOR MINES).
With Patent Flanged Joints (as illustrated) for the Conveyance of Water, Steam, and Air, at High and Low Pressures.
LAP-WELDED IRON AND STEEL BOILER TUBES
FOR LOCOMOTIVE, MARINE, AND OTHER MULTITUBULAR BOILERS.
STEEL & IRON PLATES FOR BOILERS, BRIDGES, &c.



PLAN OF PATENT FLANGED JOINT.

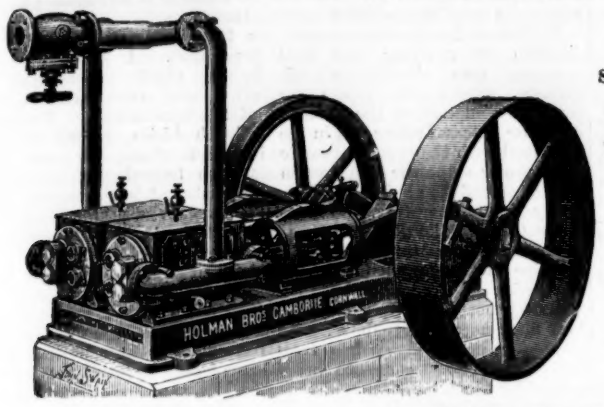
Head Offices: 41, OSWALD STREET, GLASGOW

HOLMAN Bros., Camborne, Cornwall.

ESTABLISHED 1839.

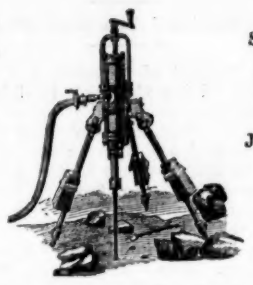
Patentees and Sole Makers of

"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR.



FIRST SILVER MEDAL, Highest Award, Mining Institute Contest, 1881.

Three Makers represented.



FIRST SILVER MEDAL Highest Award, Royal Cornwall Polytechnic Jubilee Exhibition Contest, 1882.

Five Makers represented.

AWARDED SILVER MEDAL INTERNATIONAL INVENTIONS EXHIBITION, 1885.

RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

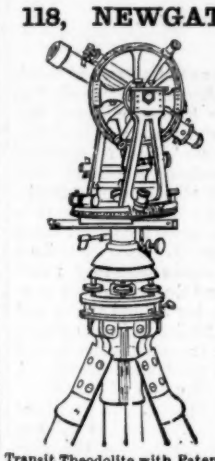
E timates for ROCK BORING PLANT and GENERAL MINING MACHINERY on Application.

London Offices: 7 and 9, LEADENHALL BUILDINGS, E.C.

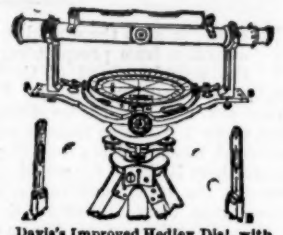
JOHN DAVIS AND SON,

ALL SAINTS WORKS, DERBY;

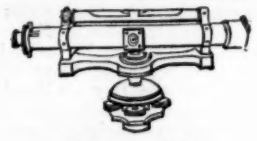
118, NEWGATE STREET, LONDON.



Transit Theodolite with Patent Hoffman Tripod Head, and Trough Compass.



Davis's Improved Hedley Dial, with Telescope and Sights Interchangeable and Patent Hoffman Tripod Head.



Dumpy Level with Hoffman Patent Tripod Head.

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THEODOLITES. LEVELS.

Davis's Improved Hedley Miners' Dials with HOFFMAN PATENT TRIPOD HEAD.

AND ALL DESCRIPTIONS OF MATHEMATICAL AND MINING SURVEYING INSTRUMENTS.

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SECTION (A) MATHEMATICAL DEPARTMENT AND SAFETY LAMPS

SECTION (B) ELECTRICAL DEPARTMENT.

Gold Medal Awarded Mining Exhibition, 1890.

"THE ENGINEERING TELEGRAPH CODE USED."

HENDERSON'S RAPID TRAVERSER

AWARDS: CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

CONCENTRATION.

The Clarkson-Stanfield Concentrator (Limited).

In the CLARKSON-STANFIELD process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

OUTPUT ½ TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.

CONCENTRATOR TO BE SEEN IN OPERATION AT THE COMPANY'S ONLY ADDRESS:

6, COLONIAL AVENUE, MINORIES, LONDON, E.

The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.

N.B.—The owners of the Carndochan Mine, near Bala, North Wales, will, by arrangement, show their CLARKSON-STANFIELD plant working on a Refractory Low Grade Gold Ore.

CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.

*** We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.*

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

HOME CONTRACTS.

Waterworks. March 11 (*Neath, near Glamorgan*).—For the construction of an underground service tank (18,000 gallons capacity), the laying of 1774 lineal yards of 3 inch and 487 lineal yards of 2 inch cast-iron water-pipes, together with all valves and fittings, in the hamlet of Resolven, for the Neath Rural District Council. Plans may be seen and copies of the specification and approximate bill of quantities, with form of tender, may be obtained at the offices of the engineer, Mr. W. E. Clason Thomas, A.M.I.C.E.

Coal. March 12 (*Worcester*).—For supply during 12 months ending June 30, 1896, of best engine slack for the waterworks; also of best smokeless steam coal for the steam-roller for the Corporation. The whole to be delivered and stacked at such places, at such times, and in such quantities as may be required. Samples of at least 10 tons of the slack will be required for trial before any tender is accepted, and part thereof will be kept for comparison. Tenders to be delivered at the office of Mr. Samuel Southall, town clerk, Guildhall, Worcester, by March 12.

Pump, March 16 (*Ballynahiach, near Downpatrick*).—For the supplying and erecting of a new pump in the Fair Green, Meeting House Street, Ballynahinch, same as the one that may be seen in Railway Street, for the Guardians of Downpatrick Union. Tenders, addressed to the Chairman, Board of Guardians, may be lodged with Mr. J. W. Montgomery, clerk, Poor Law Office, Downpatrick, up to 11 a.m. on 16th inst.

Coal. March 18 (*London, E.C.*).—For the supply of coal for use at the Tower Bridge for one year from Lady Day, for the Bridge House Estates Committee. Forms of tender, together with the conditions of the contract, may be had upon application at the Comptroller's Office, Guildhall, E.C.

Locomotives. March 19 (*India Office, S.W.*)—The Secretary of State for India in Council is prepared to receive tenders to supply locomotives. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W., and tenders are to be delivered at that office by 2 p.m. on 19th inst.

Pipes and Fittings, March 21 (*Valletta, Malta*).—Sealed tenders will be received at the office of the Receiver-General and Director of Contracts, Valletta, on or before 11 a.m. on 21st inst. for the supply of wrought-iron pipes and fittings. Tenderers in England not having a representative in Malta are to deposit with the Crown Agents the sum of £100 as surety. Particulars, specifications, &c., may be obtained on application to the Superintendent of Public Works in Malta, or to the Crown Agents for the Colonies, Downing Street, London.

Railway Construction, March 25 (*Mallaig, Scotland*).—For the works required in the construction of a railway (about 39¼ miles in length) from near Fort William to Mallaig—to be let in one contract—for the West Highland Railway Company. Plans and specifications may be seen and detailed schedules of quantities obtained, on payment of £5 5s., at the offices of Messrs. Simpson and Wilson, 175, Hope Street, Glasgow, on and after March 4.

Railway Works May 2 (*Cairo*).—Tenders are invited for the earthwork, masonry, pitching, buildings, and other works necessary for the line from Nag Hamadi to Keneh, for the Egyptian Railway Administration. Payments are guaranteed and will be made by the Commission of the Public Debt, Egypt. Tenders will be received at the Railway Administration Offices, Cairo. Conditions, general and technical description of works, may be seen during office hours on application to Colonel Western, Broadway Chambers, Westminster, S.W.

NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs. Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

3459 Lawrence MacBrayne, 11, Park Circus Place, Glasgow.—Improvements in steam boilers and in the apparatus and appliances connected with the generation of st am.—February 18.

3491 Joseph Baxeres Torres, 13, Golden Square, London.—Improvements in extracting gold and silver from ores and the like.—February 18.

3506 John Smith Raworth, 46, Lincoln's Inn Fields, London.—Improvements in steam turbines.—February 18.

3539 James Howden, 87, St. Vincent Street, Glasgow.—Improvements in instruments for cleaning fires in boiler furnaces.—February 19.

3545 Thomas Trussell, 44, Bridlington Street, Hyson Green, Nottingham.—Improved method of locking and unlocking miners' safety lamps.—February 19.

3565 Henry Julius Smith, 52, Chancery Lane, London.—Improvements in the art of blasting and means for performing the same.—February 19.

3558 Albert William Daw and Zacharias Williams Daw, 52, Chancery Lane, London.—Improvements in machines for undercutting coal and channelling stone and other minerals.—February 19.

3623 Carl Roth, 47, Lincoln's Inn Fields, London.—Improvements in means to be employed in igniting blasting charges.—February 19.

3642 James Howden, 87, St. Vincent Street, Glasgow.—Improvements applicable in connection with steam boilers and other furnaces.—February 20.

3714 Joseph Baxeres Torres, 13, Golden Square, London.—Improvements in and connected with the reduction and refining of ores, and extracting of metals therefrom.—February 21.

3722 George Gray Rhodes, 27, Kirkgate, Bradford.—Improvements in or appertaining to the furnaces of steam boilers.—February 21.

3788 Bruno Lebrun, 45, Southampton Buildings, Chancery Lane, London.—Improvements in electric locomotives, chiefly designed for use in mines.—February 21.

3810 John Edward Gresty, 13, Trevelyan Street, Huddersfield.—Improvements in and relating to steam generators.—February 22.

3858 Thomas Thompson, 37, Chancery Lane, London.—Improvements in safety lamps.

3879 Joseph Baxeres Torres, 13, Golden Square, London.—Improvements in and connected with the reduction and extraction of gold, silver, and precious metals from ores and the like.—February 22.

3934 James Mactear, 321, High Holborn, London.—Improvements in the obtainment of precious metals.—February 23.

SPECIFICATIONS PUBLISHED.

2231, Boulet, piston packings, 1894; 4800, Cautherley, motive power engines, 1894; 8975, Meldrum and others, steam generators, 1894; 6614, Cooper, valve gear for steam engines, 1894; 19145, Lake (Wier), steam engine valves, 1894; 24061, Elliott and Carrington, enlarging ends of blast holes, 1894.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each including postage.

NEWS IS FOOD FOR ACTIVE MINDS, especially in these days of quick communication, when we are enabled within a few hours to know what is taking place at the other end of the world. The merits of Holloway's Pills and Ointment, which have been familiar for over half a century amongst all civilised people, have been still more widely spread owing to these facilities. To the natives in the uttermost parts of India, Africa, Australia, and indeed, to the whole human family, these remedies have been amongst the most precious gifts of civilisation. They cure disease, and relieve the most acute pain. In cases of fever, ague, and liver and stomach complaints they are unequalled, whilst for wounds, bruises, sores, &c., they are the best known remedies.

ANSWERS TO CORRESPONDENTS.

Correspondents will please take note that all communications will in future be answered in this column and not through the medium of the post. All questions and replies should be accompanied by the name and address of the writer.

REPLIES.

G. S. B.—No; you are better as you stand.

R. J. S.—We are not able to hear of anything having yet been done.

HARRY.—Take your profits.

W. T.—Hold No. 1 for a higher price. 2 and 3 are fair speculations

E. T.—(1) Hold, and buy more on a fall.—(2) Hold and buy more.—(3) Hold.—(4) Take advantage of a rise to sell.—(5) No.

BRADFORD.—We are inclined to expect the price to go higher.

A. E. H.—No, the operation would be too dangerous.

G. H. H.—We think you should take up your proportion of the new shares.

E. H. P.—Sell on the rise. The district is very pocketty.

ZAPOPAN.—We have made enquiries at official sources, but are denied the information; you must, therefore, draw your own conclusions. It is impossible to tell whether the statements are trustworthy.

GRANT.—(1.) Hold. The company is doing fairly well on its arsenical production.—(2.) Sell.

A. B. C.—The shares are being offered for nothing, owing to the heavy relinquishments. Relinquish your shares, as future calls must be heavier. Write to the secretary.

BELLE.—West Australians.—Hampton Lands, Hampton Plains, West Australian Gold Fields, White Feather, Consolidated Gold Fields of Western Australia, New Chum, and Golconda. Rand Mines.—Gold Fields Deep, Geduld Deep, Nigel Deep, and East Rand.

PRATT.—None have any market value. We believe that, with the exception of New Emma, all are either moribund or wound up.

G. S. P.—(1.) A fair "speculative," purchase at present price, but not a "safe" one.—(2.) Do not buy. They were rushed up in the late boom.

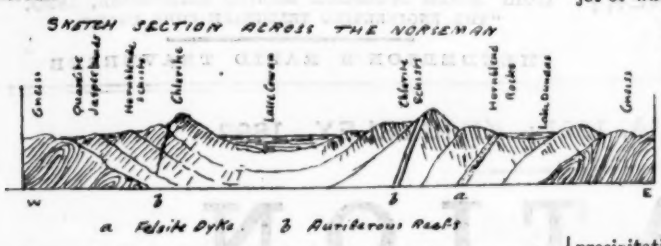
The MYSORE GOLD MINING COMPANY (LIMITED) has sold the gold obtained during the month of January last, which realised £20,299 0s. 7d.

The BALAGHAT MYSORE MINES (LIMITED) has sold the gold obtained during the month of January last, which realised £365 10s. 1d.

DUNDAS GOLD FIELDS.

By BRENTON SYMONS, M.I.C.E.

UP to the present these gold fields have not attracted much attention from prospectors, the phenomenal "finds" in the neighbourhood of Coolgardie having engaged the energies of speculative miners. The district is not, however, further south of Coolgardie than Menzies' Find is north of it, but there is between Dundas and Guarlbine a country drier than usual, which makes a long stay there almost impracticable. Nor are there facilities for reaching Dundas that have been provided for the other, and better-known, gold fields. A small schooner runs from Albany to Esperance Bay once or twice a month, and rarely one of the eastern steamboats may touch there. Along the shore to Esperance sand dunes are very prevalent, producing as usual a swampy country behind them, and during unusual rains the lagoons are said to rise 10 feet in depth, and to extend far inland. Esperance is a transport station, and here one must bargain for animals to reach the interior. A syndicate is preparing to provide a regular line of transit by camels from the Bay *via* Dundas to Coolgardie. The journey from the coast to Dundas soak (Nookannia), across 120 miles of arid plains, has lately been rendered much easier by the erection of Government tanks. The Dundas Hills can also be reached from Fanny Bay, by travelling up the depression caused by the River Lort, which extends to the salt lakes, and probably drains them, though running streams are not met with; and whatever water finds its way to the sea must percolate the superficial sands and gravels. Riding along the sandy plains, amongst the mallock thickets, or beneath the gum trees, under a burning sun, aggravated by the peculiar roll of the "ship of the desert," is far from an agreeable experience, especially when the surroundings are so unattractive. Except in the distance, only low eminences and flat undulations are visible. About two-thirds the journey towards Dundas, some high hills are visible, about 25 miles to the westward; the principal peaks, known as Charles and Eleanor, rise 2000 to 3000 feet above sea level, and as they emerge from a plain only about 600 feet, they form rather conspicuous objects, notwithstanding their remoteness. They are stated to be non-auriferous.



The vast tableland around Dundas seems to be a succession of folds striking nearly north and south, the ranges of hills being usually composed of greenstones, diorites, &c., with the granite or gneiss sometimes piercing them, and the valleys occupied by vast flats (or lakes in good rainy seasons), the shores glistening with gypsum crystals, and the centres—when not containing brackish waters covered with salt. Large quantities of gypsum and salt must be concealed beneath the lake bottoms, which are very argillaceous. The water in these flats is always more or less salt, but on the higher slopes sometimes claypans are found, in which fresh water, though somewhat muddy, remains for some weeks after rains. For most of the year, however, water has to be taken from the mine shafts, or from wells near the lakes, and as it is generally much salter than sea water it has to be distilled for domestic use. The mine workings are usually dry to the level of the neighbouring lakes. The extreme saltness of the district is to be attributed to the light rainfall, said to equal 15 inches per annum, which permits of no running streams to freshen up the soil, and also to the decomposition of the rock continually liberating soluble salts. In stormy weather the fine crystals of salts are blown all over the country around the lakes, and consequently a saline vegetation extends far beyond their shores.

The Dundas group of hills are situated in a broad depression, and possessing little elevation are not conspicuous from a distance, though beheld from the lakes they are bold and rugged enough, and rise above their level perhaps 700 feet. The auriferous rocks appears to be compressed between metamorphic granite both on the east and west, and not to have much width, though the rocks may change again eastward so as to allow of other reefing districts. Between, and resting on these Archæan rocks, are the bands of greenstone, diorites, hornblende rocks, and mica schists, in which are enclosed the gold lodes. The reefs presenting the best prospects or shows lie between the lakes called Cowan and Dundas, extending from the main camp, or Dundas soak, north and south for several miles. Near the surface chlorite schists and decomposed slatey beds prevail, the result of the weathering of hornblendic rocks, but these will become solid in depth. One is much impressed by the volcanic appearance of all the rocks, and by the generally non-eruptive character of the granites. It is difficult to decide whether the veins are conformable to the strata or not, as the surface rocks have been so much altered by atmospheric agencies, and the mine workings are so limited in extent, but the strike of the beds, which is N.N.E., is coincident with that of the reefs. Where seen in the shafts and drivages, good selvedges are found to interpose between the walls and the gangue, and usually the general appearance is that of a distinct fissure. The veins are found on the ridges, and between them the auriferous rocks are completely hidden under lacustrine accumulations, under which it is extremely probable that other reefs may exist. Even along the strike, the outcrop is, oftener than not, concealed under the debris which has slowly originated *in situ* by weathering, owing to the absence of sufficient rainfall to remove it from the hill slopes. The line of reefs extending between the Lakes Dundas and Cowan, dip west, the principal claims being the Scotia, Great Dundas, and Mawson's Reward, and the lately-discovered reefs at the Norseman, a few miles further north, whence rich quartz has been raised from shallow sinkings. Still further north the reefs and their enclosing rocks run into Lake Cowan, dividing it into two parts, and gold will probably be found in them.

The district is yet in its infancy, having been proclaimed in August, 1893, and mining can scarcely be said to have seriously commenced, though many are employed at the Great Dundas and Mawson's Reward claims. With conservation there will be water for moderate stamping, and fresh water might be stored in reservoirs, which could be so placed as to impound much of the rainfall. There is also a good supply of timber for mining purposes and for fuel. The reefs are fairly large and persistent, and show more or less gold in the various workings, and it seems more that probable that the district will soon become of importance.

THE CYANIDE PROCESS.

ITS PRACTICAL APPLICATION AND ECONOMICAL RESULTS.

By A. SCHEIDEL, Ph.D., E.M.

D.—Treatment of the Gold Solution (Recovery of the Bullion).

(*Continued from page 238.*)

IN reference to the cost of preparing the zinc, I may quote the Nigel Gold Mining Company in Johannesburg, where one native, working about eight hours a day, can easily keep the works going with an output of about 2000 ounces of gold monthly; the consumption of zinc is about 20 lbs. daily. As a rule, 1 cubic foot of zinc shavings in the precipitating box is sufficient for the precipitation of the gold from 2 tons of solution per 24 hours, or, roughly speaking, from the same weight of ore. Zinc in sheets and granulated zinc have been tried for bullion reduction, but with indifferent results, on account of their limited surface. Zinc amalgam and zinc dust have not answered, for mechanical reasons—zinc dust packing too tightly and zinc amalgam not offering sufficient surface in proportion to its weight. The precipitation of the metals in the zinc boxes takes place rapidly; the zinc in the compartment near the influx will be much more quickly charged with bullion than that in those more distant, and the zinc will be consumed in proportion. Zinc on which bullion is already deposited is more active than new zinc; it is, therefore, advisable to replace the dissolved zinc in the last compartment. The generation of hydrogen in the boxes is liable, by polarisation, to partly interfere with the bullion precipitation; the zinc in the boxes should be stirred up occasionally to avoid this.

The zinc boxes are cleaned up once or twice a month; for that purpose the inflow of the solution is stopped. The zinc shavings are stirred with a rod, which causes the fine bullion to fall off and to pass through the perforations of the false bottoms, and through the faucets at the real bottoms, into the box below, where it settles readily on the addition of a little alum. A jet of water will further wash the zinc in the chambers. This method of operating takes only a few minutes, and has been used by me in California. The liquid standing above the settled bullion is returned to the zinc box; the bullion itself, unavoidably mixed with fine zinc, is transferred through a fine sieve on to a vacuum filter. If a final cleaning up is desired, it will be necessary to dissolve the whole of the zinc, impregnated with bullion, in acid; such necessity will, however, rarely arise. The manipulation itself, if required, offers no difficulties. The precipitated bullion is very finely divided, and provision should be made to prevent its flowing away with the liquid out of the precipitation boxes.

The process of bullion precipitation by zinc is, generally speaking, a satisfactory one, although not free from objections; all operations with and manipulations of the precipitated bullion require care to avoid loss. The action of the zinc on gold solution is theoretically very simple—a simple substitution of gold by zinc according to the equation:—

$$2\,KAuCy_2 + Zn = K_2ZnCy_4 + 2\,Au$$

(Auro-potassic cyanide.) (Zinc.) (Zinc-potassic cyanide.) (Gold.)

One pound of zinc should precipitate about 6 lbs. of gold. The actual consumption is, however, considerably larger, and amounts to from 5 ounces to 1 lb. of zinc per ounce of gold recovered. A constant generation of hydrogen gas in the precipitation boxes proves the effect of the potassic hydroxide on the zinc, and probably a decomposition of cyanide of potassium, going on parallel with the decomposition of the double gold cyanide. A considerable loss of zinc occurs generally in refining the precipitated bullion, which always contains a high percentage of that metal. The double salt of auro-potassic cyanide appears to be one of the most stable of gold salts; its decomposition by zinc is, however, practically complete; an excess of cyanide of potassium in the solution does not re-dissolve precipitated gold in the boxes as long as there is zinc present. The cyanide of potassium formed into a double salt with zinc during the gold-reducing process is not available for dissolving gold in new operations. If a surplus of caustic soda has been used for neutralising acid salts in the ore without following washing, the loss of zinc will naturally be increased. A white precipitate is constantly accompanying the reduction of bullion in the zinc boxes, undoubtedly the result of the action of alkali on the zinc, and of the zinc-potassium oxide on the double cyanide of zinc and potassium, which is always present in the solution, forming the insoluble cyanide of zinc; ferro-cyanide of zinc is also formed in the boxes. Ferro-cyanide of zinc is formed in the percolation vats when the double cyanide of zinc and potassium comes in contact with the iron salts in the ore; and, as it is insoluble, to this cause is due the constant removal of zinc from the solution with the residues (Buckland). The gold precipitate on the zinc is, as a rule, brown to black, with sometimes a metallic lustre; it is mostly slimy, and when dry it seldom contains more than 40 or 50 per cent. of gold and silver, the remainder being finely-divided zinc and its accompanying impurities, such as carbonate of lead. It may also contain copper, if that metal is present in solution. (In the instance of treating concentrates containing carbonate of copper from the Sylvia Mine, New Zealand, the gold solution contained a very appreciable quantity of copper; this complicated matters by causing the copper to precipitate with the gold and cover the zinc, thus forming a galvano-plastic coating, which made it necessary to dissolve the whole of the zinc for the purpose of obtaining the bullion, till I found an addition of cyanide to the solution, before it enters the zinc boxes, useful for the prevention of the deposition of the copper).

I always found mercury in the zinc bullion in not inconsiderable quantities when concentrates had been treated by agitation. Such mercury must have been derived from amalgam, and mercury saved with the pyrites on the concentrators. Gmelin and others describe mercury as absolutely insoluble in cyanide. There is, however, no doubt of the correctness of my observations. The mercury must have been dissolved in the cyanide solution, which entered perfectly clear into the zinc boxes; solubility of gold amalgam in cyanide may offer the explanation. Traces of antimony and arsenic have also been found in the bullion. The precipitation of silver goes on by zinc simultaneously with the gold. It is even more rapid and complete than that of gold.

Other apparatus than the described boxes have been suggested for bullion precipitation by zinc—for instance, earthenware and porcelain vessels have been recommended. They have the apparent advantage of cleanliness; their construction, however, makes the cleaning up of the bullion difficult, the connection between the single cells being complicated. They have not become a practical success in works of any extent; they are all based on the principle of the solution penetrating the zinc from below and running off at the top. The precipitates, obtained as described from the zinc boxes, are transferred to a sieve, made of No. 1 punched battery screen, or a 40-mesh wire screen, through which they are washed on to a filter in connection with a vacuum chamber, where they are liberated from the adhering cyanide solution, and reduced from their very voluminous state into a more compact form. This filtration will always be found slow on account of the extremely slimy character of the bullion. For filtering and washing the bullion slimes, filter presses may be suggested. By the screening process, the coarser particles of zinc are separated from the bullion, but the bullion still contains a large percentage of very fine zinc, of which it is advisable to remove as much as possible before melting.

Bullion refining.—The means for this purpose are calcination or roasting and acid treatment. I use for roasting (see description of Sylvia plant) a muffle furnace, where the slimes are dried, and then calcined for the promotion of the oxidation of the base metals. The calcining process is generally in use in South Africa, and will be described with the cyanide practice in Johannesburg. I generally prefer sulphuric acid treatment, with following washing and drying of the bullion. The acid treatment is a comparatively simple operation, and does not require, even for large quantities of bullion, any other apparatus than wooden tubs, the increased temperature produced by the reaction of the acid on the zinc making application of artificial heat superfluous. The separation of the acid solution from and the washing of the bullion is best done by decantation, and completed on the bullion filter mentioned above. It is advisable to liberate the bullion as much as possible from base metal before melting, which is otherwise connected with loss of gold by evaporation caused by the volatilisation of zinc; besides, the zinc fumes are very disagreeable. The presence of oxides of base metals (as obtained by calcination) makes the melting tedious and expensive on account of the detrimental influence of the slag on the melting pots. The presence of a high percentage of base oxides prevents the use of graphite crucibles, and compels the use of clay pots. Bullion, when treated by acid as described, does not offer any difficulties in melting, if proceeded with in the following manner:—

The bullion, after having been treated with sulphuric acid and washed with water, is dried by suction on the vacuum filter as much as possible, after which it is easily detached from the filter cloth. The mass is then charged into the muffle. The heat is kept low to drive off the moisture; it is then increased gradually to dark red. After about one hour's calcination, during which time the oxidation of base metals which escaped removal by acid treatment is going on, the mass presents a grey-brown appearance. Attention has to be paid to the draught to prevent loss of the fine precipitates. Bullion resulting from the treatment of concentrates will invariably give off quicksilver vapours; condensation yielded only a small quantity. The calcination process completed, the roasted bullion is carefully transferred from the muffle, by mean of a small shovel, into a wrought-iron box for cooling purposes. It now presents itself in the form of lumps, approaching more or less the spherical form, of the size of peas, largely mixed with dust. When sufficiently cooled, it is charged into a pulverising cylinder of sheet-iron, 3 feet long and 2 feet in diameter, which is revolved by means of a pulley. Large pebbles are charged into the apparatus with the bullion to aid pulverisation. Borax, with preference borax glass, and soda ("ammonia-process soda") are added into the barrel, in proportions according to experience, for securing a fusible clear slag of light specific gravity. If the bullion is base on account of a large proportion of zinc oxide, which happens only if acid treatment was not properly conducted, a silicious flux, like sand or glass, has to be added. Acid sulphate of soda and fluor-spar have been occasionally found useful as additional fluxes. During pulverisation, a thorough mixture of bullion and fluxes will take place. Moisture in the fluxes should be avoided, as it is a certain source of loss in melting, the escaping water carrying fine bullion out of pot.

Plumbago crucibles are very well adapted for melting bullion, prepared as above described; they stand almost as many operations as with battery gold. In melting, some borax is first put into the crucible; the bullion mixture from the pulverising and mixing cylinder is not added all at once, but as each portion melts and sinks down, fresh quantities of it are put in. The melting goes on speedily, and in the most satisfactory manner. When the whole quantity is finally charged, the temperature is kept very high for some time, to give the small bullion globules a chance to collect. The contents of the pot are poured into a heated mould in the usual manner. No chemical losses will be experienced by this method of bullion melting. Bullion obtained by the described manipulation will be found to be at least 950 fine. The bullion produced by cyanide works generally varies in fineness according to the attention paid to its refining. Gold purchasers buy bullion on assay, and refiners charge higher rates for baser bullion; it is, therefore, as a rule, cheaper in the end to produce clean bullion. Bullion precipitation by means of zinc is not free from objections; its practice is connected with a loss of cyanide, and with the introduction into the process of a new compound (the double zinc-potassium cyanide), which is, to say the least, not an advantage; the consumption of precipitating agent (zinc) is far in excess of the amount theoretically required, and no opportunity is offered for a regeneration of the cyanide. The precipitation itself is, however, a very efficient and simple procedure, not requiring either motive power or more than ordinary attention, and the treatment of the precipitates cannot be said to offer any obstacles which would characterise the process as metallurgically inefficient. In fact, generally speaking, the clean-up of the bullion precipitated by zinc, if properly handled on the lines explained above, will hardly be found more troublesome than a mill clean-up.

(*To be continued.*)

CAGE ACCIDENT IN A LEAD MINE NEAR SHREWSBURY—SEVEN MINERS KILLED.—A shocking accident occurred at Snailbeach lead mines, near Shrewsbury, between six and seven o'clock on Wednesday morning, resulting in the death of seven miners. It appears that the men were descending the shaft in an iron cage 7 feet high, 4 feet wide, and 2 feet across. The shaft is 250 yards deep, and when the men were half-way down the wire-rope snapped, and the cage fell with a tremendous crash to the bottom. Fourteen miners had previously descended, and when they went to the scene of the accident they found their comrade crushed to death. The bodies were greatly mangled. The names of the unfortunate men killed are Joseph Evans, 45, who leaves a wife; George Lewis, 45, single; Arthur Wardman, 27, single; Thomas Jones, 37, wife and three children; Richard Oakley, 60, wife and seven children; Andrew Dorricott, 50, wife and 12 children; and another.

The directors of the STANDARD BANK OF SOUTH AFRICA recommend for the second half of last year a dividend at the rate of 10 per cent. per annum and a bonus of 4 per cent. per annum, and the transfer of £20,000 to the reserve fund, carrying forward £19,000.

The directors of A. AND J. STEWART AND CLYDESDALE recommend, that (subject to audit) the following dividends be paid for the half-year ended December 31 last—viz., at the rate of 6 per cent. per annum on the preference shares, and at the rate of 3½ per cent. per annum on the ordinary shares, placing £10,000 to depreciation fund, and carrying forward £4490 14s.

MINING IN SPAIN (ASTURIAS).

(FROM OUR OWN CORRESPONDENT.)

(*Continued from page* 179.)

JURASSIC.

The sources from whence Whitby jet are drawn.

GIJON, FEBRUARY 25

THE Jurassic in this Province stands clear and well defined in the respective patches which comprise it; the first patch of a triangular form, having its perpendicular from Gijon to Pola de Siero—a distance of 10 miles—and its base along the coast eastwardly to Rivadesella, a distance of 40 miles. In addition to this general one, there are eight others of smaller dimensions that can be examined in their various sections with clear and distinct boundaries. One to the south of Pola de Siero passes northerly under the Cretaceous, and is undoubtedly an uninterrupted continuation of the first-mentioned.

As a type of the formation, the principal patch may be taken and its examination commenced in the port of Gijon.

The town of Gijon is built upon a bed of indurated sand; this bed is a continuation of the beautiful sandy beach of the Bay of San Lorenzo, which has a length of 3 miles. The indurated state of the sand, and its impermeability, is proved by the fact that wells sunk in the town produce an unlimited supply of good potable water, without any trace of saline matter.

This beach is a sand filling of a synclinal in the Lias, its anticlinal axis on the west being the cliff of Santa Catalina, forming the eastern boundary of the Gijon Bay (on this the lighthouse has been constructed), and on the east the Cape San Lorenzo, which forms the boundary of the Bay of San Lorenzo on its eastern side.

In some excavations for a sewer in one of the streets of the town some little time ago, the mandible of a *balæna* was found, not fossilised, but preserved in the sand. This shows that, not so very long ago, where a large and thriving town to-day exists, the sea covered it to some depth, and the Santa Catalina cliff stood as an island, separated by a strait from the mainland. This, together with other facts that can be observed, shows that the sea is slowly receding from the northern coast line of the eastern portion of the Peninsula, through a rising of the land, which is being gradually but continuously effected.

The Santa Catalina cliff is built up of alternating strata of dislocated limestone and limestone shale, capped by a stratum, 20 feet thick, of large angular fragments of limestone of the same age as that underlying it, bound together by a cement of indurated limestone shale, forming thus a kind of breccia, although a very coarse one. No theory can be formed as to the origin of this, in view of its isolated position. It represents a surface cataclysm of enormous action.

Cape San Lorenzo, only 4 miles distant, has nothing of this. Its strata is higher in geological position than that of Santa Catalina. It has at its base a thick bed of Lias; following this upwards, layers of limestone shale, alternating with thin strata of limestone, then thin beds of dark marl, and, crowning the whole, a bed of small silicious pebble conglomerate, called by the country people *piedra fabuda* (bean stone). This varies in thickness from 10 to 30 feet. It is well bound together by silicious sand. Some of pebbles are porphyritic, occasionally there are pebbles of jet, others are green and dark quartzite. Its base to-day lies at 100 feet above low water-mark. It formed a beach long ages ago. The greater portion of its component parts were derived from the rocks that form the western side of Gijon Bay, comprising the promontory of Cape Torres. It has not been risen to its present position by any sudden action, but by the general elevation of the land referred to above. The beach of the Gijon Bay, forming to-day, is identical in appearance, being exclusively comprised of small pebbles and grains like haricot beans in appearance, without any sand. The current, running eastwardly, deposits the sand on the San Lorenzo beach, forming a hard and level bathing ground, sloping gradually into the sea. This beach forms one of the special attractions of this rising town during the summer months, and many thousands of people are yearly drawn to it from the interior of the country, to enjoy its salubrious climate, and its splendid bathing.

fauna. The section below will give a fair idea of the form in which these are met with:—

1.—Lower Lias limestone, holding *Pentacrinites* and *Belemnites*, resting conformably on the Keuper marls of the Triassic.
2.—Ashy-coloured marls, with *Melania* and *Turritella*.
3.—Coloured sandstones, with interbedded marls.
4.—Marl and red sandstones alternating.
5.—Greeny Lumachel.
6.—Dark marl.
7.—Black limestones and red marl alternating, having fossils of *Belemnites*, *Ammonites*, *Gryphæa*, *Terebratula*, *Pecten*, and *Rhynchonella*.
8.—White and red sandstones, with jet in small fragments of fine quality, but too small to be utilised.
9.—Red marl.
10.—Hard and compact fine-grained sandstone.
11.—Grey sandy marls, having an abundant fauna of *Trigonia*, *Astarte*, *Cardium*, and *Gervilla*.

The jet met with in No. 8 appears to result from a washed-out portion of some lower marl strata, forming an independent portion of the section, different in every respect from what is met with in the remaining part of this formation in the Province.

This section comprises beds of dark shales and sandstones, the former abounding in the genus *Posidonomya*. These shales, which in some places become compact dark-coloured marls, are from 4 to 6 feet thick, having a slight general northerly dip. One stratum of this is important, owing to the abundant jet of the best quality contained in it. These deposits show that although a goodly portion of the superficies of Europe was covered by the Jurassic seas, still in the vicinity of this section a part stood, covered with splendid vegetation, subject to terrible inundations and tempests, which broke down its forests, and embedded the trunks in the forming marls, where they underwent metamorphism and carbonisation. The bark of these trees produced the jet that is to-day mined and worked into so many diverse objects. This is proved by the fact that in the working of one of these mines, a trunk two feet in diameter was discovered, and a portion, a metre in length, was taken out entire, and it now lies at the mouth of the gallery. The bark formed a coating of most excellent jet, which, of course, was for the most part stripped off by the miners, whilst the stem is converted into a compact mass of calcite, without in any way altering the concentric rings of this exogenous body. A saw-cut across this would permit microscopical examination of its cells, and a comparison with existing timber of similar growth being made. It would thus go a long way towards proving one species of wood, from whence jet has been derived, as from the quality of the jet found it is evident that it originated from more than one species.

One class of jet has no line of cleavage. It is perfectly homogeneous, with a conchoidal fracture, and can be carved into the most delicate imitations of flowers and other objects of Nature. The other class has a longitudinal cleavage, and in mining it comes away in ribs of different lengths; its thickness varies from a ¼ to 2 or more inches, and the width of the rib from ½ inch to 4 or 5 inches; but these wide pieces have still a sub-cleavage, which in some cases has a filling of a very thin film of calcite, and generally holds very small needles of pyrites, arising probably from the filling of the bark pores with this matter in solution. In mining this latter class it is not a rare occurrence to find the wood converted into a soft brown lignite, whilst in the former class this is never the case.

There is an area of about 20 square kilometres of this jet-bearing bed in the section, of which about 3 kilometres square have been partially worked. All the workings to the present have been carried on by adit. The water draining from the old mines is generally very astringent, but no one has yet thought of utilising it for the manufacture of alum.

Several mines were worked during the last century here, and the hand-manufacture of the product into crosses, rosaries, and amulets formed a staple industry, and an important item in the life of the villagers. These were sold at the several places of réunion of the pilgrims, at the numerous shrines in the country, and especially at that of Santiago, in Galicia; in addition, a large quantity was shipped for sale to the Spanish colonies of the New World.

During the present century, an Englishman discovered the fact that this bed was in every particular identical with those of Whitby; and as the Whitby beds were then worked under difficulty, and advancing towards exhaustion, here the manufacturers had a source from whence inexhaustible supplies could be drawn. Mines were secured and work commenced, and an export trade soon sprung up. Shipments were made under the head of lignite, and the secret of the trade was well kept. Since that time to the present it has been carried on in the same hands with the satisfactory results that may be looked for from a monopoly. For the last 30 years nearly the whole "real Whitby jet" of the market has been worked out of the mines in this Province, and imported into Whitby from here.

As in the same formation in other countries, there are no abundant bodies of ores except some beds of limonite. These need not be examined in detail. There are three groups that to the present have not been worked, except on a very limited scale, for the occasional supply of the local ironworks, and, indeed, up to within a short time there were no means of transport owing to the want of roads.

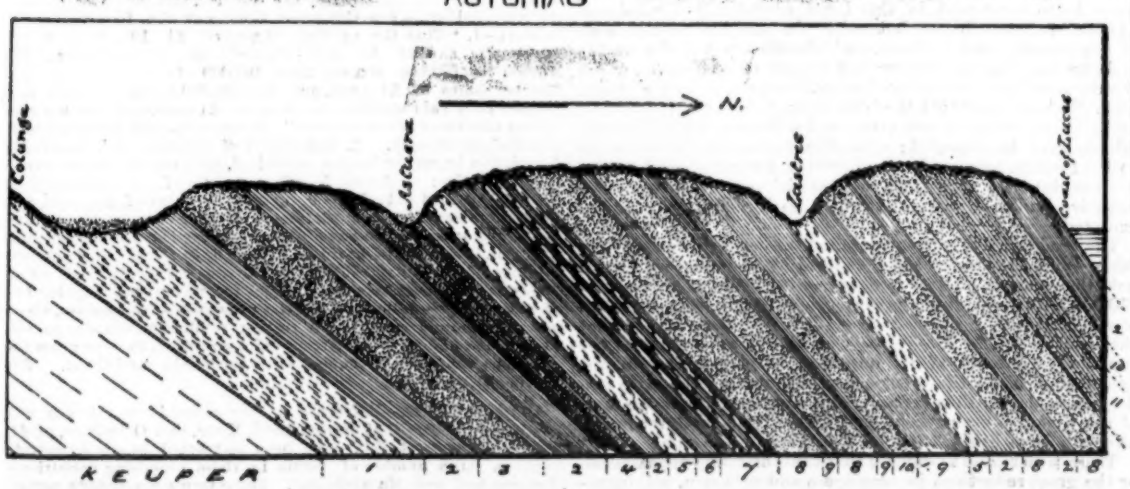
The Lieres Railway will, when constructed, pass through two of these groups, whilst the third is within two miles of an existing railway station. These beds yield ore containing from 48 to 50 per cent. of metallic iron, and it is reported that this is practically free from sulphur and phosphorus, so that when the above railway is constructed they may be looked upon as valuable, as one is within 4 miles of this port of Gijon, and the other is only 9 miles distant.

The Jurassic, as well as the Keuper, forms essentially rich soils for the cultivation of cereals and pasturage. The fruits of the country grown on this privileged soil—nuts, apples, pears, and cherries, &c., are very abundant, and of an excellent quality.

From 3000 to 5000 tons of nuts are as a rule shipped yearly to London, Liverpool, and Bristol, and are known in those markets as Barcelona nuts. The manufacture of cider is an important industry, yielding a beverage of superior quality, which forms the staple drink of the Province, and constitutes, too, an article of extensive exportation to Cuba and Puerto Rico.

STRATIGRAPHICAL SECTION OF THE LIAS FROM COLUNGA TO LUCES

ASTURIAS



Whilst the fauna of the Santa Catalina cliffs is very sparse, that of San Lorenzo teems with the various species, typical of the formation. There is one bed above the Lias, about 2 feet thick, thickly studded with *Rhynchonella*, beautifully preserved, easily separated from the encasing limestone by a slight tap of a hammer, still preserving their nacerous coating. The interior of each is filled with dog-tooth spar, or is homogeneous with the encasing rock. Then there is a harvest, too, of *Terebratula*, *T. maxillata*, *T. obovata*, *T. perovales*, *T. bullata*, and others. *Waldheimia* is also abundant, and in the strata above these, *Gryphæa incurva*, *G. arcuata*, *Pholadomya Murchisonii*, *Geromya concentrica*, *Mediola gibbosa*, *spirifer*, and *spiriferina* are met with. At low water an examination of the lower beds yields the searcher innumerable specimens of *Ammonites* from an inch to a foot in diameter, some of the small ones being so perfectly preserved that the minutest details of its conchiferous covering can be observed in its pristine colours. These comprise *A. planicostas*, *A. angulatus*, *A. biculatus*, and others. *Belemnites* are also abundant. This portion of the coast is a geologists' garden, where he may revel at his ease, ever finding something new.

Further east the higher measures are met with. These may be classed as belonging to the Lower Oolite, if judged from their

GOLD IN COLORADO.

BY A CORRESPONDENT.

HAVING regard to the great interest in the gold mining developments of the last few years in South Africa, Western Australia, and elsewhere, a brief notice of what is going on in Colorado is timely. It can best be illustrated by three individual instances of gold mines, not one of which is for sale, either in whole or in part, but which belong to private parties, and are, therefore, not listed on any Stock Exchange. For the sole purpose of precluding even a passing suspicion that there is any object in this article except to show the growing importance of Colorado as a gold producer, the names of the mines in question, and of their owners, is not here given, but those gentlemen are personally known to the writer, and they furnished to him, at his request, the following particulars which have never before been published.

The first mine is in El Paso County. Mr. S., from 1884 to 1891 had had various tries at mining in the San Juan region and elsewhere in Colorado, with very discouraging results until he met the reward his perseverance deserved. The spring of 1891 found him in Colorado Springs, practically without money, and in April of that year he loaded his miner's outfit on the back of a donkey, and, driving it before him, walked the 35 miles between that place and the site of the present town of Cripple Creek, then a remote, practically uninhabited, mountain cattle pasture. He looked for cryolite (as to which there was then considerable talk), and after prospecting around the district, on the 4th July located two mining claims. There were boulders on the surface of the ground weighing as much as 10 tons each. A small piece of one of these boulders assayed £76 in gold per ton, but a chunk 90 lbs. weight only assayed 45s. per ton. By his own labour he sunk on the first claim an ordinary 10-feet hole, and another on the second. He tried to treat the ore in a crude way, but it only panned out sometimes 6s. per ton, as it proved to require milling and amalgamating treatment. The first work was done on the No. 1 claim, because it looked the richest, and free gold could be seen in it. Whilst engaged in sinking on this claim parties came along and asked for a bond and lease, which he gave to them for 18 months for £16,000, of which £2000 was cash. With the £2000 he commenced work on the second claim, the two claims touching endwise, being continuations of each other, and also purchased neighbouring claims. During 1892 he sunk the shaft on the No. 2 claim 75 feet, taking out nothing but ore, which remained on the ground, as there were no mills for its treatment, and no available railroads; in fact, practically no wagon roads. At that time he hoped to put up a small mill himself at no distant date. In 1893 he shipped the first ore from the No. 2 claim to a small stamp mill which has just been erected in the vicinity. He also made an open-cut up the hill from the shaft house, 170 feet long, cutting the vein at 5 feet deep, and out of that open-cut, from first to last, he took £12,000. The test of the first pan of ore was over 16s. per ton, and yielded on the amalgam plate 24s. per ton, and a good proportion of fair concentrates. In 1893 money began coming in so fast that he did not pay much attention to assaying the ore, continuing to be content with the treatment at the stamp mill. While the open-cut was being made he had a drift run by contract from the shaft (which had been sunk deeper during 1892 and 1893) 75 feet below the same ore body that was revealed in the open-cut. One day he went into the drift just after the firing of a blast, and took a sample of the ore, which on the plates at the stamp mill was yielding £5 per ton. Simultaneously a second shaft was being sunk to connect with the drift from the first shaft, which second shaft was already deep enough to require a windlass. He took a sample also from the bottom of the shallow second shaft. On assaying he found to his astonishment that the sample from the drift below showed £37 per ton, while the one from the new shaft showed over £26. It was evident that the stamp mill and amalgam plates were not saving the gold, so he concluded to send his ore to the Denver smelters, hauling it by wagon to the then nearest railroad point, and the first car shipped realised £38 per ton. He did not keep track of how much gold he got during 1893. During the latter part of 1894 he sent carloads of ore to the Denver smelters which averaged 23 ounces per ton, the whole output for the year averaging nearly 6 ounces per ton; and from 1st January, 1894, to 1st January, 1895, the mine produced, according to the books, £96,000, representing, however, only six months' work, as from February to July a general miners' strike in the district caused the mines to be practically shut down for that period, with subsequent delay getting water out. The mine now lies between two competing railroads, each within a stone's throw of the shaft houses, which railroads were built in 1894 to tap this rich mining district, now having a population of 15,000 people. In January, 1895, he made one shipment of six cars of ore to Denver, of which half a car consisted of sacked ore, averaging over 60 ounces, or over £200 per ton, the remaining 5½ cars being regular mine run ore. It is estimated by experts that there is now blocked out in this mine ready for stoping about £200,000 worth of ore. Since the mine first began to pay well he has from time to time purchased neighbouring claims until he now owns from 75 to 100 acres of surface ground. The only real anxiety he has ever had about the mine was in the early part of 1893, when he was induced to give an option on it for £31,000, of which £1000 was to be paid in 30 days, and the balance in another 60 days. Judging from the small amount of ore then in sight the mine was not apparently worth that amount, but he had faith in it, and was much relieved when the bank panic of 1893 rendered the would-be purchaser, in New York, either unable or unwilling to furnish the necessary £1000 deposit, and the option expired by lapse of time. An adjoining mine, the owners of which, four years ago, were poor men, in nine months' working in 1894 produced in gold over £100,000, and is now shipping two cars of ore per day, 20 tons to the car, averaging £20 per ton, or £800 per day. There are a number of other mines in the district making large daily shipments of equally rich ore.

The second instance is a mine in Lake County. A Mr. C., a practical and experienced miner, theorised as to the probability of the existence of gold in paying quantities in a particular district close to the railroad, and commenced exploration work in 1891. He began work himself by taking a lease of some mining property partially opened up, and afterwards finding he needed

financial assistance, invited friends to join him in the enterprise, which they did. Gold was discovered in August, 1892, but not in large quantities, though enough to make them hopeful. After further exploration along a level they had started, they concluded that the main ore bodies were deeper and, going back, they sank the shaft another 150 feet, in some places through dolomite sand or liquid lime, a most difficult, treacherous, and expensive material to pass through. During 1893 the main ore body was reached, and in that year they took out about £200,000. In 1894 about £400,000 was taken out, the ore running at about £10 per ton. The ore body is now developed for 1200 feet in length, 40 feet thick, and from 250 to 500 feet wide, and is said to be the largest ore body of that grade ever discovered. The parties in question own about 150 acres of surface ground, of which only 15 acres are at present opened up by underground workings. In the 15 acres there are already 12 or 14 miles of levels and upraises, just an interlaced mass of workings. Over 300 men are continuously employed in the mine itself, and, including tree fellers, carpenters, ore and coal haulers, &c., nearly 1000 men are furnished employment directly or indirectly by this one mine. The pumps turn out 1500 gallons of water per minute. In the same neighbourhood another mine has produced £300,000 in gold in the last few years, and a third mine £100,000 in the last 18 months. Development is now being rapidly pushed on on other mining properties in the same gold belt.

The third instance is a mine in Hinsdale county less than 4 miles from a railroad. This mine was located and opened up in 1871, and worked intermittently for a number of years, successive owners taking from the surface ground several lots of high-grade ore carrying gold and silver, realising a considerable amount of money, but failing to strike the main ore body. The success, however, was so fluctuating that between 1871 and 1889 the mine was abandoned and relocated twice. In 1889 new parties leased it, and took practically from surface ground about £8000 in 60 days. The mine was purchased by the present owners, who are Denver business men. In 1891, extensive development work was at once entered upon, and in August 1892 ore was struck at a depth of 200 feet. Since that time the mine has been worked, not with the sole view of taking out the ore possible, but simultaneously to open it up effectually by three tunnels at different levels. now aggregating 2300 feet, connected by 400 feet of winzes. From August 1892 to 31st December, 1892, £2200 worth of ore was taken out at a cost of £1200; in 1893, £26,200 was taken out at a cost of £5400; in 1894, £25,400 was taken out at a cost of £8600, and in consequence of the efficient and prudent development work above mentioned, the mine is now producing, and will continue for a considerable time apparently, to produce ore to the extent of £5000 per month at a cost of about £1600 per month, such cost also covering simultaneous further development work. At present there is £100,000 worth of ore in sight ready for stoping. As showing the richness of the ore, the mine has shipped cars of 10 tons, running from £3600 to £4400 per car, and the ore for the whole of 1894 averaged £84 per ton. The ore is a mixture of tellurium, ruby, silver, and grey copper, yielding half gold and half silver, and is one of the most wonderful tellurium deposits ever discovered.

Is it any wonder that the gold output of Colorado, as shown by the statistics of the United States Mint, has increased, in round figures, as follows:—1889, £727,000; 1890, £803,000; 1891, £955,000; 1892, £1,108,000; 1893, £1,500,000; 1894, £2,120,000? Everything indicates that the gold output of Colorado for 1895 will be nearer £4,000,000 than £3,000,000; and remembering that there are less than 500,000 people in the whole State, such an increase in the gold production alone means much for the local prosperity.

The above increased output has been, and is, being brought about almost entirely by Colorado capital, for as yet Eastern and European capitalists do not seem to have fully realised what is going on there.

THE FEBRUARY OUTPUT OF THE INDIAN MINES.

DURING last month the output of the producing mines in Mysore, India, was 19,358 ounces, showing a decrease of 314 ounces as compared with the preceding month, and an increase of 3555 ounces as compared with the corresponding month of 1894. The production since the beginning of 1891 has been as follows:—

	1891. Ozs.	1892. Ozs.	1893. Ozs.	1894. Ozs.	1895. Ozs.
January ...	10,186	11,674	16,844	17,026	19,672
February...	10,121	11,780	16,656	15,803	19,358
March	10,117	11,579	17,463	16,080	—
April	9,392	11,813	18,287	15,551	—
May	10,509	12,488	17,922	16,543	—
June	10,746	11,847	16,879	15,459	—
July	11,097	13,277	16,676	18,271	—
August.....	11,222	14,854	16,692	19,073	—
September	11,396	15,529	17,060	18,911	—
October ...	12,095	15,922	17,440	19,119	—
November	11,667	15,942	17,557	18,825	—
December	11,589	16,435	17,659	19,068	—
Total ...	130,137	163,140	207,135	209,729	39,030

The outputs of the individual mines for the past six months have been:—

	Sept. Ozs.	Oct. Ozs.	Nov. Ozs.	Dec. Ozs.	Jan. Ozs.	Feb. Ozs.
Ooregum	5,297	5,269	5,319	5,325	5,361	5,382
Mysore	4,209	4,614	4,622	4,889	5,191	4,953
Champion Reef	5,597	5,603	5,605	5,618	5,635	5,636
Nundydroog ...	3,074	3,005	3,101	3,106	3,143	3,058
Coromandel ...	—	—	—	—	—	217
Nine Reefs ...	—	—	—	—	147	146
Balaghat	705	525	125	115	95	81
Mysore Reefs	29	42	53	51	68	90
Yerrakonda ...	—	—	—	—	32	52

British Guiana's Gold Industry.—The amount of gold entered at the Custom House, Georgetown, on the 6th inst. for shipment by the R.M.S. *Dee*, which sailed the same afternoon, was 4431 ounces 6 dwts. 9 grains to the value of $79,193·26, an increase in the previous shipment of 2205 ounces 6 dwts. 8 grains to the value of $39,447·65. With this addition the total output for the year amounts to 6636 ounces 12 dwts. 17 grains, to the value of $118,640·91. The following is the returns of gold entered at the office of the Department of Mines for the week ending February 9, 1895:—

	ozs.	dwts.	grs.
Barima	450	15	8
Cuyuni	692	18	21
Mazaruni	231	11	6
Essequebo	157	12	0
Potaro	491	11	12
Total	2034	8	23

The export of gold from January 1 to February 18, 1895, amounted to 8484 ounces 8 dwts. 18 grains, at $151,444·69, as against 4338 ounces 2 dwts. 7 grains, at $77,130 for the corresponding period of 1894.

NOTES FROM ANDALUCIA.

ECONOMIES AT THARSIS AND RIO TINTO.—IMPORTANT CRITICISM.

(FROM A CORRESPONDENT.)

LIKE the rest of this country, those of this Province of Huelva complain of hard times, no business, &c.; while to meet these difficulties economy is studied everywhere, and generally consists in dismissing employees and workmen, while from these sections comes a still ruder complaint of want and misery. Still, compared with many Provinces, together with the severe winter now ruling, this Province is still much the best for all, as well as in undertakings, than any other in Andalucia.

The cupreous pyrites mines continued much the same during 1894 as in 1893; the most important changes being the purchase of Lagunazo by the Tharsis Company, and the continuation of dismissals and economies in the old mines, and the extra changes, dismissals, and economies at Rio Tinto; while the others have also kept steady owing to abundance of water.

Altogether there is a continuation of the decrease observable for some years past in the production of copper, and this will continue. Mention need only be made of Santo Domingo, Tharsis, and Rio Tinto, which are the greatest producers, and in which most mining agents are interested.

Santo Domingo shows itself hard and poor in copper ores in depth, as has been anticipated, and no brightening of prospects is to be expected here, while any profit made is chiefly from the old heaps of ore in treatment, and difference of exchange and economies in labour.

Tharsis.—The company has a heavy expenditure for the purchase and preparation of Lagunazo, which has been pushed most vigorously, so that leaving apart the purchase price, the working expenses of last year will not be covered by produce, but this year it is expected will see these recovered, and something over.

In Tharsis proper continued economies have been effected; in fact, those employed at Lagunazo have mostly been drawn from the works at Tharsis and La Zarza, and thus no increase of workmen or chiefs of departments has taken place, although an additional large mine is now exploited. The masses here further show the old tendencies to poorness in copper, and quantity in depth, while some hopes have been formed that the outcrops north of the Sierra Bullones lode will turn out of some value. The ore pertaining to this is being tested at various points.

The new ore added during the past year, the old heaps, and the cupreous schists of La Esperanzas, which are treated in their natural state simply by exposure to atmospheric agencies, continue to give excellent results, assisted by abundant water supplies, the Esperanzas schist producing, as usual, very pure copper precipitate.

The difficulties as to the liquors that fill the abandoned North lode and open-cast, have been overcome by drawing the same from a zone nearer the surface, and all are now convinced of the tendency of these liquors from cupreous pyrites, to classify their contents, if given time, exposure, and sufficient depth; the iron, arsenic, &c., with hardly a trace of copper being at the bottom, while the copper contents gradually increase until they reach a maximum in the zone at the surface.

At the Zarza Mine great reductions of workmen have taken place chiefly owing to the completion of the open-cast works, these dismissed workmen passing chiefly to the new works at Lagunazo, while the investigations in other parts of this mine have indicated the permanency of the hard and poor in copper ore, and its tendency to diminish in depth in quantity. This mine is still the chief source of supply for export ore, while the poor ore passing to local treatment, together with the old heaps and abundance of water, of which last they complained as scarce in 1893, have all helped to keep the production of copper precipitate steady. The open-cast works of all the mines have suffered from heavy slips owing to long-continued rains.

Tharsis Company and properties, while the zenith of their copper production has long been past, will, with the new additions, continue to yield fair dividends, certainly owing to extreme economy and also adjustment of exchange, which last has played an important part in all these properties. Mr. Francis Johnson, their chief chemist, died on the 13th of January last (victim of a severe cold resulting from his field investigations and consequent exposure in the mountains), deeply regretted.

Rio Tinto.—The long-expected day of reckoning has come upon those concerned in this large company, and wholesale economies are now the rule, but mostly consist of dismissals of chiefs of departments and workmen, and abandonment of the useless and expensive salt and manganese process of calcination, which should never have been adopted, or, at least, stopped after its first trial. No less than 23 chiefs of departments have been dismissed, and a large number of assistants and workmen, but further dismissals may be expected; while the investigations made into costs of works, repairs, &c. (and further investigations have yet to be made) show these and the material purchased have been excessive, and require more attention, so here economies may be expected.

The production of copper precipitate and export ore continues fairly equal, the former being assisted by abundance of water; but the masses of ore that were originally calculated in 200,000,000 tons of rich cupreous pyrites, now fairly display in a convincing manner the mistake of these calculations, and that the available ore in Rio Tinto is equally in proportion to the superficial contents of its outcrops, as experienced in the exploitation of all the other mines, and displays the same tendencies in depth, thus reducing to alarming figures the tons of ore that the masses can give. The Spanish Government, after all, have had the best of this bargain and sale.

There is no reason to suppose that these alarming appearances, or the great reductions in employees and workmen, will immediately reduce the output or production, unless this is ordered, for the prepared works can give the same as 1894, even with the smaller number of hands.

Respecting the economies already made, these will better the financial position of the company. Yet the great evil remains in the First, Second, and Third Mortgage bonds, and their interest and payment, which (at least the First and Second) were created to develop the mines, but far beyond requirements, based on over-calculations of the masses and the capacity of the world's consumption of such ores and copper. The last (No. 3) of these mortgage bonds is looked upon by those who know the mine as altogether uncalled for; and the fact is, the mine was fully equipped and developed long ago in the 20 years' exploitation just passed. But No. 3 was required for coal mining, and obtaining their supplies in Spain, and with the intention of constructing a railway to the coal fields of Belmez, &c.; at least part has gone to these, and part is stated as being used in covering the obligations of the company. Now, it is well known that coal mining in Belmez is difficult and not so cheap as other parts of Spain or other countries; and that they had to find the coal at their own expense, &c. They did not find coal, and all the excessive expenses incurred in this and concessions and railways, amounting to many thousands sterling, were completely lost; and all this in face of the fact that English experts of note had condemned that zone. Even had they got coal, this would have been of no advantage to the mine of Rio Tinto, as the transport of the same would be three times the value of foreign coal, leave alone the cost of mining, and its inferior quality for some purposes. All these reflections cause many to look on this No. 3 mortgage bond in a bad light, and while under the security of Rio Tinto, yet actually as for the purposes of providing a solution of the difficulties of the Railway Zafra and Huelva, by providing transport for the same; and this is criticised just because the creators of No. 3 were interested in the Zafra and Huelva Railway as well as Rio Tinto, and that they hold, or held, important positions in both, a criticism all regret.

Thus the economies now ordered are still small compared with these mistakes and their charges, and here is a problem to solve how economy can be introduced here. As in the other mines, economy, old heaps, and exchange adjustments are the factors in producing a profit, while actual mining operations are not producers for the present, until the ore extracted and in treatment begins to yield its copper, while exporting ore is not profitable.

General.—The cost of producing copper is generally well under the market values just ruling, but the quantity produced is gradually decreasing. In the expenses incurred these are less, owing to the old heaps being long since paid for. The low rate of wages, and further lowered by the exchange that has been very favourable to English money; also while the price of copper is low, yet all the materials required are also low in value, and compensate the lowness in price by economies in these. Thus, as copper can be produced well under £40 per ton, and leave a profit at this price, it may be surmised that the value will not rise so long as the cost of production is under £40, and leaves a reasonable profit, as is the case in the well-administered mines in this Province and in America. Thus all schemes for reduction of production, &c., are of no avail, and only blinds, and things no company contracting has the least intention of fulfilling. Even now the copper production is threatened with an increase from America by a new mine in California that is reported by the owners as richer and larger than any in the world, and other parts of the world are not backward in offering others.

The next important ore is manganese, especially carbonate. Although still a new thing here, considerable progress has been made in those nearest the shipping port, and the large deposits of the south of Portugal are being investigated for carbonate, while the Zafra and Huelva Railway is encouraging those on its flanks by lower rates of transport, and fair shipments have so far been made notwithstanding the low price paid. Even the poor oxides, consisting of many tons in deposit of that ore, intended for the now rejected calcination process at Rio Tinto, are being shipped to Hamburg. The prices offered are much better than at first, while another advantage is that now several agencies for purchase of this ore are established in the shipping ports, who examine, buy, and pay before shipment all suitable ores, thus avoiding all difficulties of mine owners, and shipments to buyers in foreign lands, and hence it is easier and safer to develop these deposits. Messrs. Sundhium have three furnaces of iron cases, and refractory bricks for calcination of the carbonate at the Santa Isabel Mines, and others are intending to follow this example. Meanwhile, the difficulty is the silica, especially with English users, who I am informed have large stocks still on hand from late strikes in the coal mines. Germany and France are the chief consumers, and make less scruple as to silica. Some allow this is owing to improved methods of treating manganese and iron ores, which have not yet been adopted in England, as the most of the works there follow old systems, and do not see their way at present expensive alterations.

Other ores of other metals as iron, silver, lead, &c., are small factors in the past year. Iron ores are, however, beginning to appear in some quantity at the shipping port of Huelva, and several silver lead mines in the northern parts of this Province are showing favourable signs.

New Tamarugal Nitrate Company (Limited).—An extraordinary general meeting of this company was held at Winchester House, on Monday, Sir Francis Evans, M.P., presiding.—The Chairman explained that the meeting had been convened for the purpose of carrying out the instruction which was given to the board at the last general meeting of the company—namely, to turn the shares of the company into £1 shares, and also to give the holders the option of making them bearer shares, if they so desired. The necessary resolutions had been prepared by the solicitor, and circulated among the shareholders.—The Chairman then put the following resolutions:—1. "That the existing shares of £1 10s. each in the company's capital be sub-divided as follows — viz., the 130,000 preference shares into 195,000 fully paid up preference shares of £1 each, and the 130,000 ordinary shares into 195,000 fully paid up ordinary shares of £1 each, and that the conditions contained in the company's Memorandum of Association be modified accordingly. 2. That rule 7 of the company's Articles of Association be, and is hereby cancelled, and the following substituted therefor: — Article 7. The capital of the company is £390,000 divided into 195,000 preference shares of £1 each, and 195,000 ordinary shares of £1 each. 3. That the directors be and are hereby authorised to issue provisional certificates in such language and form as the board may think fit in respect of fractional holdings of the reduced shares, and to do and perform all other things and acts necessary or expedient for the purpose of giving full effect to these resolutions."—Mr. G. Bush seconded the motion, which was unanimously carried. A further resolution was also passed, altering and adding to the Articles of Association, so as to allow the provisions contained in the first resolutions to be carried out. The meeting then closed.

African Farms.—Reference to our advertising columns will inform our readers that Messrs. Loyd, Knox, and Grimshaw, of 41, Threadneedle-street, E.C., have been instructed to sell by private treaty a large number of farms in those promising countries—Mashonaland and Matabeleland. These farms are already pegged out, registered, and surveyed, and the title deeds can be handed over at one hour's notice, an advantage which will, no doubt, make them more active in the eyes of purchasers. Another advantageous feature is that the main road from Victoria to Salisbury, as well as the road leading to Buluwayo, runs through the estate, and the telegraph line laid down by the British South African Company passes through the property. Moreover, the railroad from Beira to Salisbury, and from Salisbury to Victoria, will pass through some of the farms. What is most significant, perhaps, is the statement of the agents that two-thirds of the farms offered for sale are gold bearing, so that very likely there will be many eager to purchase. Further, Messrs. Loyd, Knox, and Grimshaw inform us that they are in a position to hand over with each estate reports signed by leading South African mining engineers.

Impending Strike of 15,000 Miners.—Pittsburg, March 6.—In consequence of futile negotiations for an advance in wages between the leaders of the miners in this district and the mine-owners, the former to-day ordered a general strike. 15,000 men are involved.

The transfer of its property to the Tamworth Gold Mining Company is now complete, and the mine has been worked on the company's account since the 28th ult.

REVIEWS.

Mr. M. EISSLER'S BOOK.

"The Cyanide Process for the Extraction of Gold." By M. Eissler. (London: Crosby Lockwood and Son.)

The readers of mining literature are well acquainted with the name of Mr. Eissler in connection with his well-known works on the metallurgy of the precious metals. To these he has added another book of no less importance than his former ones—on the working of the cyanide process, principally in connection with South African mines. The book is especially welcome as being a valuable addition, from personal experience, to the scanty literature on the subject, the importance of which, however, may be judged from the fact that nearly one-third of the gold output of the Transvaal is due to the introduction and successful working of the cyanide process.

Taking, first of all, the system connected with the name of the MacArthur-Forrest Company, Mr. Eissler devotes his first chapter to the erection of the necessary plant, and gives full details in connection with the planning of the works, with drawings showing the general arrangement of the plant, the construction of the vats and the precipitation boxes, all taken from actual practice on the Rand. Having erected his plant, he, as a natural sequence, shows us how to work it in Chapter II, and takes his readers through the whole process, from the filling of the vats, through the various stages of leaching, to the precipitation of the gold from the cyanide solution in the zinc boxes, and the final preparation of the gold slimes by smelting into the form of bullion for the market.

The non-technical reader is not so much interested in the theory and practice, with which the engineer must be familiar, but he is very desirous of knowing what it will cost, and what are the losses which may be expected. He has not been forgotten, for Mr. Eissler goes very fully into these questions, and, taking the average assay value of a Rand mine at 16 dwts. per ton, he puts the average extraction in the battery by plate amalgamation at 10 dwts., or (say) 63 per cent. of the gold in the ore. The balance of 6 dwts. passes into the tailings, and is what has to be dealt with by the cyanide process. The whole of the tailings cannot, however, be treated by this process, as the slimes, which would prevent filtration in the vats, must be eliminated. Taking an amount of (say) 1000 tons of battery tailings of 6 dwts., at least 30 per cent. of this, or (say) 300 tons at 6 dwts., containing a total of 1800 dwts., go to the slime pits; while the balance of 700 tons of tailings at 6 dwts., containing 4200 dwts. go to the leaching vats. Of these 4200 dwts., 70 per cent., equal to 2940 dwts., is recovered by the cyanide, so that the amount recovered from the original 1000 tons of tailings represents 50 per cent. in round numbers, or 3 dwts. out of the 6 dwts. To this must be added the 10 dwts. recovered on the plates, which makes 13 dwts. out of the original 16 dwts. in the ore, or 82 per cent. of the total gold contents. Some day or other a reliable process for treating the slimes will doubtless be discovered, in which case the satisfactory figure of 90 per cent. of the gold contents will be recovered, and this would be about the practical limit. The actual cost of the process varies at different mines, and depends on the size of the plant, the facilities for handling the tailings and the consumption of cyanide. Speaking generally, Mr. Eissler puts the cost at large works treating over 10,000 tons at 4s. per ton; in works treating from 5000 to 7000 tons, from 5s. to 6s. per ton; and in smaller works of from 3000 to 4000 tons, at from 6s. to 7s. per ton, the cost rising in proportion to the decrease of the amount treated per month.

One of the drawbacks to the original cyanide process is that the solutions must, comparatively speaking, be strong, or otherwise the precipitation of the gold by chemical action in the zinc boxes is more or less imperfect. This has led to the introduction of electricity for the purpose of precipitation, and by its aid very dilute solutions may be used as long as they are sufficiently strong to dissolve the gold contents of the tailings. This leads not only to economy in the matter of cyanide, but also permits of the use of acid, neutral or alkaline solutions, and so avoids several chemical complications inherent to the ordinary process. Chapter III. is, therefore, devoted to the Siemens-Halske process for the precipitation of gold from cyanide solutions, and detailed information is given as to its employment at the Worcester Works, together with plans showing the general arrangement of the vats, electric machinery, and precipitation boxes, together with the cost per ton, the time taken, and the results achieved. The next chapter is taken up with a description of the operations at such well-known works as the Simmer and Jack, Langlaagte Estate, and Crown Reef, and is full of useful information as to the practical working of the process, and then the book is brought to a close in Chapter V. by an account of the chemistry of the cyanide process, which, in addition to matter of purely chemical interest, contains also much valuable information as to the strength of the various solutions employed in the working, and the tests to be employed for ascertaining their quality.

The book is well got up, well illustrated, and, in our opinion, is just what was needed by mining men to make them acquainted with the actual working of a process which is not only the most popular, but is, as a general rule, the most successful for the extraction of gold from tailings.

A WORK FOR STEAM USERS.

"Indicator Diagrams, and Engine and Boiler Testing." By Charles Day. (The Technical Publishing Company, Limited.)

In these days of so-called technical education, when a perfect mania for the passing of examinations in all kinds of out-of-the-way subjects seems to have taken the form of an acute epidemic, second only—if second at all—to the influenza in its baneful effects, it is quite a relief to come across a book on a technical subject written with no eye at all to the prevailing examination craze—a book written for the purpose of imparting information instead of a superficial appearance thereof. It is, moreover, a book written obviously by a thoroughly practical man, with all the typical advantages and disadvantages attendant on such a work; advantages, because the practical man knows his subject thoroughly, and really understands all its minute details; and disadvantages, because he has no great capacity for imparting to others the knowledge which he himself possesses, and because his very intimate acquaintance with his subject makes him forget that he is writing for others to whom that—which is with him an every-day matter—is by no means so clearly obvious as he takes it to be. In these few lines the good and bad qualities of the work before us are fairly summarised. The book is fairly divisible into the two very distinct portions into which the author has divided it, the first giving an account of the indicator and indicator diagrams, and explaining with much detail how these may be used to discover defects in the construction and working of a steam engine. The second part is occupied by a description of the methods employed in testing engines and boilers as regards their economy or wastefulness in working, and giving the most approved methods of determining the evaporative power, the consumption of fuel and of water per horse-power, and generally the conditions of working of engines and boilers.

Whilst very little has been written on this latter subject, the literature of the indicator is already sufficiently voluminous. There is, however, always room for another good book on the subject, and we note with approval that not only is the original form of Watt's indicator described, but drawings and descriptions are also given of the more modern patterns of indicators, which have been especially devised to meet the need of the modern high-speed engine working at high pressures. We miss, however, anything at all approaching an account of the application of the indicator to gas, hot air, oil, &c., engines, which are coming so much into favour for certain kinds of work, and we could have wished that the author had devoted a chapter to the indicating of engines other than steam engines.

The first two chapters on the indicator and the best methods of connecting it to the cylinder and the moving parts respectively of an engine, are thoroughly practical, and should prove of real value to those engaged in similar work. The remaining chapters, which are devoted to an explanation of the diagram when produced, and which are fully illustrated by numerous reproductions of engine diagrams, most of which bear the stamp of having been obtained in actual practice, and not evolved from the author's imagination, contain much valuable matter, but suffer from the faults we have already hinted at. The explanations are in many cases so confused that it is not always easy, even for those acquainted with the subject, to follow the author's meaning. It should be added that he assumes that he is writing not for raw students, but for men who have some notion at any rate of what an indicator diagram is. Of actual mistakes there are very few We may, however, point out that the main object of the planimeter is not to correctly ascertain the mean pressure in the cylinder.

The second part of the book has the same characteristic good and bad points as the first, and contains much valuable information, which we can only regret has not been more scientifically arranged. A couple of pages are devoted to general remarks, and then the subject of boiler testing is attacked, the term boiler testing being here applied in the restricted sense of testing its steam-raising powers only. The methods of measuring the fuel used, the water evaporated, the clinker produced, &c., are here given, together with instructions for measuring the temperatures of the various important points, and for analysing both the coal used and the flue gases produced. We cannot agree with the author that there are no reliable pyrometers capable of measuring the temperature of the furnace; he can surely not be acquainted with the more modern forms of the Le Chatelier pyrometer. We are also surprised to find no reference to the Thompson calorimeter, or to any of the more modern forms of that instrument. Upon the whole, the book should prove of value to those engineers who often have occasion to test steam engines, in spite of the evidences we find in places of careless writing. We could also wish to find it more free from grammatical mistakes, which, whilst not detracting from its technical value, are, nevertheless, irritating to the reader.

LEGAL LITERATURE.

"Every Man's Own Lawyer." 32nd edition, carefully revised and enlarged, by a Barrister. London: Crosby Lockwood and Son. Price 6s. 8d.

This volume has been considerably increased in its usefulness to laymen, for whom it is intended, by a table containing definitions and explanations of legal terms, which appears for the first time in the present edition. On the whole, the work seems to have been carefully done, and the text seems generally to be written in a clear and simple manner, avoiding, as far as is possible, technical language. The reader will find due attention given to recent legislation—the Local Government Act establishing Parish and District Councils, the Finance Act, the Sale of Goods Act, the Notice of Accidents Act, the Merchant Shipping Act, the Building Societies Act of last year, the Public Authorities Act, the Voluntary Conveyances Act, the Trustee Act, the Conveyancing and Real Property Act of 1893, and the Directors Liability Act (1890), with many others, being duly noticed. Such a volume as the one before us, conscientiously compiled and corrected as it is, is bound to add to the large circulation which this work deservedly has secured. Its avowed object is to enable those who consult it to help themselves to the law. We think the author has fairly attained his desire, so far as supplying an opportunity of obtaining some idea of the law on many subjects; but when he expresses further that we may thereby dispense with professional assistance and advice, he wisely qualifies that with the words "as far as possible," and, in our opinion, the wise man will ascertain from it sufficient knowledge to see that the distance he should travel unaided will not be far.

"The Engineer's Year-Book." By H. R. Kempe. (Crosby Lockwood and Son, London.) 1895 Edition.

In the preface to the first edition of this book (in 1894) the author very justly remarked "that there is probably no profession which has so great a need of a year book as that of the engineer; the scope of whose operations is for ever widening, thus bringing into play frequent changes in practice, and as constant an enlargement of the formulæ which embody them." The design of the year-book under notice is to keep pace with the yearly advances made in the profession; and encouraged by the success which attended the first issue, the author has now, through his publishers, laid before us the second, in which he has incorporated a large amount of additional matter drawn from various sources, which are courteously acknowledged. The book is compiled for the use of the engineering profession in general, and not for any particular branch of it, and is divided into convenient sections dealing with subjects as widely different as marine engineering is from mining, or explosives from refrigerating machinery.

We have naturally considered the work from the point of view of its utility to the mining man, and see much to recommend in it as relating to the constructive work which often falls to his lot in connection with buildings, machinery, earthworks, hydraulics, and surveying. It does not profess to be, and is not, a book devoted to this particular branch of engineering; but it does deal, and that efficiently, with the broad basis on which the civil, mechanical, and mining sections are united, and the formulæ which are common to all.

The book is well got-up and well illustrated, and is an encyclopædia of engineering knowledge. If we were inclined to find fault with it, it will be on the grounds that, in our opinion, the advertisements should all have been placed at the end, and not scattered through the technical matter.

An extraordinary general meeting of the WOLHUTER GOLD MINING COMPANY (LIMITED) will be held in Johannesburg on April 8 next, to confirm (or otherwise) an agreement provisionally entered into with the Rand Mines (Limited), and, if this be carried, to increase the capital of the company from £130,000 to £215,000 by the creation of 85,000 £1 shares, of which 17,000 shares will be offered to shareholders.

MERCHANDISE MARKS.

CONFERENCE AT THE LONDON CHAMBER OF COMMERCE.

A LARGE and—where the broad essentials of the subject were concerned—for the most part unanimous, meeting of the members of the London Chamber of Commerce was held on Wednesday, at Botolph House, Eastcheap, for the purpose of conferring on the present state of the laws affecting Merchandise Marks, and considering some suggested amendments thereto. Sir ALBERT ROLLIT, M.P., as President of the Chamber, presided, and among those present were Colonel Howard Vincent, M.P., Mr. J. J. Colman, M.P., Sir Henry Bergne, Mr. R. T. Browse, Mr. Beckett Hill, Mr. J. Innes Rogers, Mr. Frank Safford, Mr. E. H. Howell, Mr. W. K. Gilbert, Mr. Faudel Phillips, Mr. A. Morris, Mr. S. Hayshi, Mr. Abrahams, Mr. Jeremiah Lyon, Major Parkington, Mr. W. Klingenstein, Mr. A. B. Kent, and Mr. Kenric B. Murray (secretary of the Chamber of Commerce).

The CHAIRMAN, in his opening address, said the Council had felt that, as the subject of merchandise marks was at present arousing a great deal of public interest, the members of the Chamber should be invited to meet together and formulate their views on such an important matter, especially as certain Bills had been introduced into Parliament for the purpose of amending the present Act. It had been arranged that no resolutions should be submitted to the meeting, Colonel Howard Vincent holding the view that the deliberate opinion of the Chamber would not be represented there. Whatever views might be held as to the present state of the laws, he was bound to say that these Acts were administered in a spirit which was creditable to the Civil Service of the country.

Colonel H. VINCENT, M.P., said that as the members of the Chamber numbered about 4000, and there could not be more than 60 or 70 gentlemen present in the room, it would not be right or proper that a definite expression of opinion under the circumstances should be arrived at without full opportunity being accorded to every gentleman on the books to give a vote on the question. The matter was of the very greatest importance to the entire mercantile community, and in considering the subject it was necessary to bear in mind the great distinction between the commercial and industrial communities of the country. The Merchandise Marks Act was passed in 1887, and a prominent part in passing it into law was taken by Sheffield, where manufacturers and others belonging to both political parties combined to endeavour to put a stop to considerable quantities of goods being imported into this country from abroad with the names of Sheffield firms upon them. The great defect in the Act of 1887, however, was that while it provided that all foreign-made goods coming into this country should bear a mark of origin, it allowed goods to be imported absolutely unmarked. This was an extraordinary flaw. The total importations of foreign goods in this kingdom in 1894 represented £68,000,000; and was it fair, therefore, to the industrial classes, as well as to manufacturers, that goods should be allowed to enter this country that were made in French and German prisons, and sold here, directly or indirectly, as of British production? (Applause.)

Mr. J. INNES ROGERS said that Colonel Vincent's recommendation was that whenever goods came into this country they must have a mark showing the country they had been made in. A more highly impracticable proposal was never made. (Hear, hear.) All business men, either at that conference or outside, ought to be strongly interested in putting a stop to an agitation which would be destructive to British trade. Such a course as was proposed would be no protection to our industries, and no protection against fraud. There was no doubt that the marking of foreign goods in the way indicated would be nothing else than Protection—(hear, hear)—and he had as yet not seen the slightest sign on the part of manufacturers who carried on their industries under Free Trade of an intention to desert it. The main point in the agitation now on foot was the marking of goods on retail sale—that every pound of sugar or mutton should be labelled with the source of origin. The thing was absolutely impossible. (Applause.) Mr. Vincent claimed that the result of the Act passed in 1887 had been beneficial, but he differed from him, as, according to his belief, it had been most prejudicial to the trading interests of the country. Protection was certainly required in England, not against foreign competition, but against dishonesty—(hear, hear)—and in his opinion the Act now in force was quite inefficient for the purpose of detecting fraud. (Hear, hear.) The true remedy for the grievances of Colonel Vincent and his friends would be for the regulations of the Act to be properly enforced by the Public Departments of the State in the same way as was done with the provisions of the Food and Drugs Act. (Applause.)

Mr. J. J. COLMAN, M.P., was present as a learner, and considered that there was something to be said on both sides of this question. (Hear, hear.) It must be a source of gratification to those present to find that British merchants were not yet snuffed out—(hear, hear, and laughter)—and he was pleased to think that English manufacturers were still able to hold their own.

Mr. W. K. GILBERT, as a representative of the leather trade, supported, in a measure, some of the statements of Colonel H. Vincent; and cited instances of the introduction of German manufactured leather into England with Russian characters on it.

Mr. BECKETT HILL considered that if the Act had been of benefit to Sheffield in any way—and from the trade returns he could not suppose so—it had inflicted a great deal of injury upon London. (Hear, hear.) Under Free Trade, merchants and manufacturers here had built up a commerce that had made London the financial centre of the world, but an Act of the kind referred to would strike at the very root of their business. And when business men were invited to leave their offices at such an hour in the day to discuss this subject, why should they not be permitted to pass a resolution? (Applause.)

The CHAIRMAN: I take exactly the same view, and said to Colonel Vincent at the House last night that that was my view; but when I came here I found that the secretary had made a condition with Colonel Vincent, and it was a condition not to be broken. (Hear, hear.)

Mr. HOWELL (Chairman of the textile section of the Chamber) wished to endorse Mr. Rogers's views. One of the causes of the decadence of British trade seemed to him to be the disposition of the English working man to quarrel with his bread and butter.

Mr. JEREMIAH LYON took the opposite view, remarking that instead of this country being the emporium of the world, as it used to be, a very large part of our trade had been diverted by the great increase of foreign commerce under the present Act.

Mr. A. B. KENT, a representative of the brush trade, declared that there was not the slightest doubt that many brushes were made in foreign prisons, and were sent over here to compete with native articles. When mixed in the warehouses they could never be detected. He suggested that any amendment in the existing Act should make it illegal for foreign goods to be sold in this country bearing an English name or designation.

Mr. FRANK SAFFORD, Barrister-at-law, said he had taken a deep interest in the matter under discussion for a very long time, and considered it to be one closely concerning the prosperity of the trade of the country. To him it appeared to be no question of Free Trade, but simply a matter of business, and nothing else. Mr. Rogers had expressed the view that the Act was not sufficient in its scope; he had been going to suggest that the Act was something more than sufficient—a fact which was responsible for a great deal of the mischief complained of. Colonel Vincent had pointed out that the object of the Sheffield people was to prevent the perpetration of frauds by the use of false indications as to the origin of goods coming into the country. Where the Act was at fault, in his opinion, was that it did not stop at prohibiting untruths. Had it only gone thus far, there would have been no difficulty. According to the sixteenth section of the Act, however, goods that had false marks might come into the country, provided they bore also the

name of the country from which they came. Thus, however easily the inscription "Made in Germany" might be understood by the English Custom House officials, when the goods were trans-shipped to India, and taken up the country, the Hindoo who opened them did not understand it, and, seeing only the English inscription upon them, jumped at once to the conclusion that they were of English manufacture. If China had a great reputation for a particular class of goods, and possessed a Merchandise Marks Act—from which at the present they were rather far off—(laughter)—a German firm could easily manufacture these particular goods and inscribe them with the Chinese character, with the result that when shipped all over the world they would be taken for Chinese goods. The Act should have stopped at providing that no goods should come into the country bearing any false indications as to having been manufactured in any place or by any trader in England. Under that arrangement the honest manufacturer and trader would be wholly protected, and while the former would have only to contend with legitimate competition, the latter would be free to exercise those powers of judgment and selection to which every trader was entitled. Why shou'd a free and compulsory advertisement be given to foreign-made goods? (Applause.) That was what the present system came to. (Hear, hear.) Moreover, there was the difficulty of ensuring accuracy in the marks indicating the place of origin of any particular goods. How could the Custom House officers possibly know that the marks upon goods from France or Germany correctly conveyed their true place of origin? Beyond that, to enforce such an Act as Colonel Howard Vincent had suggested, would require twice as many Custom House officers as at present. (Applause.)

Mr. Abraham, Mr. A. Morris, and Mr. Feuerheerd having contributed briefly to the discussion,

Colonel Vincent replied to his critics, observing that several of the speakers had attributed the decline and depression in trade to the Merchandise Marks Acts, but the official returns issued by the Board of Trade showed an increase of 61½ millions sterling between the years 1887 (when the Act was passed) and 1892. The exports of English and Irish produce and the transhipment trade had also increased within the same period each by five millions sterling.

The Chairman, in closing the conference, said that they were agreed upon one point—that frauds, at any rate, should be prosecuted—(hear, hear)—and that the Act to that extent ought to be strengthened. (Hear, hear.) They had had the advantage of opinions of an expert character bearing upon the subject; but so important was the question that he hoped a larger and wider opportunity would be given for hearing even more about it, and putting it to the test of a division. (Hear, hear.)

A vote of thanks to Sir A. Rollit for presiding, accorded unanimously on the motion of Sir H. Bergne, concluded the proceedings.

MEETINGS OF MINING COMPANIES.

THE SPITZKOP FARM GOLD COMPANY.

Vast masses of quartz in sight.—Some satisfactory assays.

The first ordinary general meeting of the shareholders of this reconstructed company was held on Tuesday, at Winchester House, the chair being occupied by Mr. W. M. Mitchell.

The Secretary (Mr. R. Norton-Dawson) read the notice convening the meeting.

The Chairman said: Gentlemen, this is the first annual meeting of the reconstructed company, and the opportunity I have of making some remarks affords me some satisfaction, for I have the great gratification to say that never in the history of the various phases of Spitzkop has the mine been in such a position as we find it at this moment. Having myself been so many years connected with the mine, I have always found some shareholders, who, through good and ill report, have believed in the ultimate success of this mine—why, I do not know; but of this I can assure you—I have always been one of those who have so long believed in it, and I hope that (what was one described by a shareholder at a previous meeting as a mine of faith and hope) will turn out eventually to be a mine of wealth and interest. The value of the land (whether as a mine or its natural agricultural position, has risen considerably in value during the last two or three years. Our 7280 acres are now within easy reach of the Pretoria-Delagoa Bay Railway, a line some 370 miles long, and on which the journey is done from point to point in some 24 hours, and which must assuredly develop the country in its track. We have also a telegraph station a few miles off, at Pilgrim's Rest, and we hope, owing to present agitation, to see our messages transmitted at 5s. a word instead of 8s. 11d.; and one grand feature of this estate, which is of paramount importance, is the supply of water—so much so, that if I am rightly informed, we are as well supplied in this respect as any in the Transvaal. A financial paper has described the position, accurately as it seems to me, in the following words:—"The yearly report is decidedly of an encouraging nature. It shows that the company has been worked at a profit, that its mortgage has been paid off from its hydraulicing operations alone, and that it possesses a reef with, to quote the manager's words, 'quartz enough to last generations.' Its present 10 stamp mill can crush 800 tons per month, and when the extra 15 stamps are added, 2000 tons can be treated. The assays show from 10 dwts. to 14 dwts. Under such conditions the company ought very shortly to be placed in the list of regular dividend payers." As to how the work of the mine is proceeding, I cannot do better than read the report of the manager, dated January 22, who writes:—"Mill: The re-erection is fast approaching completion. All the machinery is up, including self-feeders and a substantial ore bin; also a substantial building, 60 feet by 40 feet by 30 feet, erected over same. The foundations (mason work) for new Pelton wheel are in a forward state.—Cyanide works. The excavations for this will probably be completed in about 10 days." You will, therefore, see that I was not far out in stating at the statutory meeting that I believed going on as we were then, by hydraulicking alone, we had a prospect of a dividend, and we could have paid a small dividend at the end of the financial year had not the fortunate circumstance intervened of the grand discovery of a reef, which necessitated the employment of all our available funds to erect the requisite plant, consequent upon this discovery. With respect to the supply of further stamps, the board has not lost sight of this, but the manager prefers to walk well before he commences to run; and we think he is correct, for soon we shall be winning gold again, and this will, of course, put the company into a better position to meet all demands. It is a matter of much congratulation that the directors still retain every confidence in the mining manager, Mr. D. H. Baylon, who has displayed excellent business qualities, combined with technical and practical mining abilities, so that the extracts from his reports, which are inserted in the financial papers week by week, may be taken not only as interesting, but as eminently trustworthy. With regard to the balance-sheet, I think you will find our auditors have been most anxious to thoroughly investigate the accounts, and place before you a precise statement of our position; the only note which calls for attention is that which called forth a good deal of open criticism. This note explains itself:—"Note: Claim under the agreement for the reconstruction of Spitzkop (Limited), dated October 16, 1893, by shareholders of that company who did not join the reconstruction, which claim the directors do not admit, and, in a word, the directors decline to admit this claim. We had considerable difficulty, by circulars, notices, and personal interviews, to obtain the 99,070 shares applied for, and we consider it only fair that those who have borne the burden and heat of the day should reap the benefit of their speculation. Notwithstanding the various letters from shareholders in the old company, and also studied insults the directors have received, we, therefore, maintain the position taken up, as our duty for the protection of those shareholders by whose timely aid, and taking up the shares, at the reconstruction of the company, we were enabled to carry on the venture." I have now to move "that the directors' report and balance-sheet presented at this meeting be received and adopted." (Applause).

Mr. J. C. Baylon seconded the resolution, which was carried unanimously.

Mr. J. C. Baylon, in proposing the re-election of the Chairman to the directorate, said that his services would be of great value in carrying the company forward to what he had no doubt would be a most successful future. Mr. Mitchell had been connected with the company for many years, and his efforts had been persistently devoted to its welfare. His own connection with the company had lasted for something like three years, and at the start he had no idea of the possibility of arriving at so successful an issue as now seemed to be before them. The small dividend which might have been paid last year was due to hydraulicing, and at that time they were only crushing some 15,000 tons of quartz, which assayed from 3 to 4 dwts. They had no reef, although they had a strong conviction that there was one there. The money provided by the reconstruction enabled them to discover the reef, and now the manager stated that there were 13,000,000 tons of ore in sight. The board's wish was that an attempt should be made to give him more stamping power, but he was of rather a cautious disposition, and preferred to go on hydraulicing with two monitors and working with the 10 stamp mill until things were quite ship-shape. They had gone to some expense in putting up cyanide works, which would result, no doubt, in a great saving. The prospects of the company seemed, in fact, to be remarkably good. (Applause.)

Mr. W. E. Venn seconded the motion for the re-election of the Chairman, speaking of the straightforward way in which the whole business of the company was managed, and the re-election was unanimously carried.

The auditors, Messrs. Josolyne, Miles, and Blow, were, on the motion of Mr. Catterson, seconded by Mr. Watson, unanimously re-appointed.

The Chairman, in answer to questions, stated that the last assays were from 10 to 13 dwts. to the ton. There was no litigation actually in progress, but some might be pending in connection with the 40,000 shares. This claim the board were prepared to resist to the best of their power. (Applause.)

A vote of thanks to the Chairman terminated the proceedings.

THE MARBELLA IRON ORE COMPANY, LIMITED.

Loss on the year's business of £2357.—The mines closed by the Spanish authorities.

The ordinary general meeting of this company was held at the offices of the company, 78, Queen Victoria-street, E.C., on Tuesday, Mr. P. W. Spence (Chairman) presiding.

The Secretary (Mr. Frederick Birkinshaw) having read the notice convening the meeting,

The Chairman, moving the adoption of the report and accounts, said it was a subject of extreme regret to the directors that they were not able to lay before the meeting a more satisfactory balance-sheet, but they would remember that it was not until February last year that the directors were able to come to terms with Messrs. Heredia for a new lease of their mine. Under the conditions of that lease the company were allowed six months without the payment of any rental, except royalty on the ore obtained, in order that the mine might be put in a proper condition. It had been left during the previous 12 months without any proper supervision, and no means had been taken to prevent falls of earth. On taking possession, the directors found the mine in a very much worse condition than they had expected, as there had been several heavy falls, and a great deal of time and labour had to be expended in clearing the roadways and galleries. So much was this the case that during the first six months only 3443 tons of ore were mined, and in the four months succeeding 7230 tons, making, with the amount from the company's own mine, the poor total of 21,906 tons. During the whole of last year the iron ore trade was in an extremely depressed condition. There was no enquiry from America, and to sell ore in England or on the Continent extremely low rates had to be accepted. Since the beginning of the year there had been a rather better demand, and the directors had had enquiries both from America and England. In consequence of the very small output and the low prices the accounts showed a loss of £2357; but as a credit balance had been carried over from the previous year of £2720, there still remained a balance of £363. The company's own mine had been extremely disappointing. The directors had been in hopes that as they went deeper the percentage of iron would be higher, but unfortunately it had not turned out so. In sinking to the 8th floor they had passed through ore, but all of too low a percentage to allow them to extract at a profit. They had been very much hampered by the Spanish local authorities. An unfortunate accident happened in the mine, by which a man was killed. The directors did not know how it happened, but it was supposed to have occurred through the fall of a stone from the roof. They had no reason to suppose that it arose from any negligence on the part of the manager. The judicial authorities investigated the case, and made various suggestions, which the directors at once adopted. Then the question was raised that the manager had not passed through a technical mining school, and that he did not hold an academic title, but as he had had some years' experience in mining in England, as he held a Board of Trade certificate, and as he had been working three years at this mine, the directors thought it was rather late in the day to put forward such an objection. They were also advised that it was illegal for the Spanish authorities to do so. The engineer of the Province visited the spot where the accident occurred, and made a report to the Governor, who ordered the whole of the company's works to be closed. This tyrannical and unjust act the directors believed to be illegal. They at once made a strong protest to the Spanish Government through the British Foreign Office; but things worked very slowly in Spain, and he regretted to say he was not able to give any further particulars to-day. The directors were quite at a loss to know why there had been all this trouble and turmoil. As far as they knew they had given no cause of offence. For upwards of 20 years they had worked harmoniously with all the authorities, and he could only trust that when this irritation had passed away the company would again work harmoniously with them. He (the Chairman) trusted they might look forward to a better state of things.

Mr. J. C. Wakefield seconded the motion.

In reply to Mr. Malcolm, the Chairman said the Spanish authorities had not only stopped the works, but would not even allow the men to enter into the mines, to keep them in repair. The Foreign Office had taken up the matter very warmly, and the Under-Secretary had telegraphed to the British Ambassador to press the subject on the Spanish Government. The company had plenty of ore to ship at present, and they were not prevented from doing so.

Mr. C. D. Royds said that it appeared to him there must be some friction. He could hardly suppose the Spanish Government would take such a view as they seemed to have done if there was not something that annoyed them. Was it possible that the manager, although a very capable an able man, was a man who understood the Spaniards, who were people who sometimes wanted a little smoothing down? He suggested that as soon as the present difficulty was got over the directors should send out some one to investigate, and if it was found that the manager did not work well with the Spaniards a change might be made.

The Chairman said that those were the exact feelings of the board, but they could take no action till the present question was settled.

The motion for the adoption of the report and accounts was then put and carried unanimously.

The retiring directors, Messrs. Spence and MacPherson, were re-elected.

The Chairman, in recommending the confirmation of Mr. Obicini's election, mentioned that he was a most suitable gentleman, as he was not only a very large shareholder, but was connected with Spain, and spoke the language.

The election was confirmed.

A hearty vote of thanks to the Chairman, which was unanimously accorded, concluded the proceedings.

LISBON-BERLYN COMPANY, LIMITED.

A lively but unanimous meeting.

An extraordinary general meeting of the shareholders of the Lisbon-Berlyn Company (Limited) was held on Monday, at the Cannon-street Hotel, for the purpose of considering the present constitution of the directorate; and, if thought fit, of confirming the appointment of Lieut.-General Owen Williams, Mr. Nicol Brown, and Major-General A. C. Bruce as directors of the company; also for obtaining the opinion of the shareholders upon the right of Mr. M. S. Lazarus, a shareholder, to use the company's name in an action which he has commenced in the Chancery Division of the High Court.

Mr. F. C. Holland was voted to the chair, in the absence of Lieut.-General Owen Williams, the Chairman of the company, and detailed the circumstances which had rendered the present meeting necessary, and concluding with the motion—"That this meeting confirms the appointments of Lieut.-General Owen Williams, Mr. Nicol Brown, and Major-General A. C. Bruce, C.B., as directors of the company."

Mr. C. B. Dobson seconded the resolution, saying that he had been associated with Mr. Nicol Brown and General Bruce on the direction of the company, and he had come to the conclusion that they were two of the most suitable and desirable men that the shareholders could possibly have on the board. (Applause.)

Mr. A. J. Benjamin, whose speech was punctuated by many interruptions, stated that he commenced the action on behalf of Mr. Lazarus because one of the Articles of Association had not been complied with. The Court had held that he was right in the view he took—namely, that when a poll was once demanded at a meeting, and the voting was taken, until the result of that poll was known no resolution had been passed. He did not intend to move an amendment, because, so far as he was personally concerned, he did not care who was appointed a director, so long as he had a *bona fide* interest in the company. (Laughter.) He considered that General Owen Williams was about the best person they could have to be a director, but with regard to Mr. Nicol Brown and General Bruce, on 4th January, when the notice was issued asking the shareholders to appoint those gentlemen as directors, neither of them held a single share in the company.

Mr. Landan: That is why we altered the Articles of Association.

Mr. Benjamin stated, in conclusion, that he would record his vote in opposition to the appointment of those two gentlemen.

Mr. Proffitt spoke in support of the resolution, expressing the hope that the services which had been rendered by Mr. Sutherland and Mr. Hamilton in the past would be considered. Had it not been for the action of the latter gentleman in advancing the balance of the purchase-money out of his own pocket, the company would not now be the owners of the Frankfort property, which, it was stated, was going to pay the shareholders enormous dividends in the future. He thought it would be advisable that Mr. Hamilton and Mr. Dobson should be added to the board.

Mr. Bevitt supported the suggestion as far as Mr. Hamilton was concerned.

Mr. Macklin referred to the legal proceedings, saying that Mr. Justice Kekewich had held that the poll already referred to could not be withdrawn, and the result was that every transfer and every certificate given since was only worth the paper it was written on. (Laughter.)

Finally, the resolution was put and carried, with one dissentient.

The Chairman next moved: "That this meeting disapproves of the use by Mr. Lazarus of the name of the company in the action (referred to in the notice convening the meeting), and, if necessary, authorises an application to have the name of the company struck out as plaintiffs in the action."

Mr. Dobson seconded the resolution, which was carried with one dissentient.

Mr. Proffitt moved that the directors should be requested to add to their number the names of Mr. Hamilton and Mr. Dobson.

Mr. Murray Griffiths said it would be manifestly unfair to thrust upon the new directors one of the old members of the board. (Applause.)

The Chairman said that when Mr. Nicol Brown and General Bruce signified their willingness to accept office they did so on the condition that the appointment of other directors should be left in their hands. He, therefore, thought it would be wise to leave the matter in that way. (Applause.)

Mr. Nicol Brown delivered a short address, in which he gave an outline of the manner in which such a gold mine as that possessed by the company should be managed, and stated that although at present all was chaos, the directors hoped to bring the company into a tranquil and more promising condition when the new staff were at work, and the existing difficulties had passed away.

The usual vote of thanks to the Chairman concluded the proceedings.

WEST FRANCES.

Call of 7s. per share.

A 16-weekly meeting of shareholders in West Frances was held on the mine on Thursday.

Mr. G. B. Pearce, C.C., who was voted to the chair, said their purser (Mr. W. Pike) was abroad, and they had to deplore the absence of their manager (Captain Josiah Thomas), because, as they knew, he was laid by by a serious illness, which prevented him for the moment taking an active part in the work of the mine. He saw Captain Josiah Thomas on the previous night, and he was glad to say he was very much better, and he had no doubt that before long he would take his accustomed place in the mining world, and to do his work in the manner they had been accustomed to see him do it. (Applause.)

The accounts showed—Labour costs, £3429; merchants' bills, £1940; Camborne parish rates, £49; Illogan parish rates, £18; bank charges, £20; and lord's dues, £76, making the total expenditure £5533. The assets were black tin (103 tons 11 cwts. 3 qrs. 8 lbs.), £3634; extra carriage, £16; discounts on merchants' bills, £11; making the total £3662, and having a loss of £1871 on the four months, increasing the balance against the mine to £2384.

The Chairman said the position was a very serious one. They believed the property was one that ought not to be abandoned, but was worth further trial if they could looked forward to the prospect of an improved price for tin. In view of the possibility of a continuation of the low price for tin it was thought they ought to look the position in the face, and consider whether they were able to continue to pay such losses as were now being made in this mine.

Captain A. R. Thomas pointed out that it would be foolish to abandon the property until they saw what was discovered in South Frances. Whatever they had in that mine they would get in West Frances. In Daubor's shaft of South Frances the West Frances engine lode had been intersected. It was a very good lode of about 14 feet wide, and would do about ½ a cwt. of tin to the ton of stuff.

Mr. Dunkin said the mine was at present a dead-and-alive thing, and he thought it would be better to stop if they did not work it more vigorously.

The accounts were adopted on the motion of the Chairman, seconded by Mr. J. Mayne.

Mr. J. WICKETT moved, and Mr. N. TRESTRAIL seconded, the making of a 7s. call.—Carried.

The CHAIRMAN said there was, as they knew, a difference between that mine and Wheal Grenville as to encroachments. The matter was so, and so far as the executive of West Frances were concerned, he believed they had a very strong opinion as to the claim that would have to be made. But seeing that not only Captain Josiah Thomas, but also Captain Bishop, was laid aside, and were thus for the moment prevented from consulting on the matter, he thought it would be wise to let the matter remain in their hands until they had an opportunity of coming to a friendly arrangement in regard to the matter. No large shareholder had relinquished. There had been 359 shares relinquished by 20 shareholders. Some of the large shareholders had discussed the advisability of appointing a small committee to take into consideration the present working of the mine with a view to making some tangible reduction in the expenditure, and to take such steps as they might deem prudent under the circumstances. (Hear, hear.)

On the motion of Mr. J. WICKETT, seconded by Mr. A. DUNKIN, the following committee was appointed:—Messrs. H. M. Williams, G. B. Pearce, G. P. Henwood, and C. V. Thomas. It was also decided to ask them to take into consideration the payment of lord's due by the mine.

A vote of sympathy with Captain Josiah Thomas in his illness was passed unanimously on the motion of Mr. JEFFERY, seconded by Mr. J. RULE.

WALKERS, PARKER, AND CO.

A change in the management.—The company's past career.

The ordinary general meeting of Walkers, Parker, and Co. (Limited) was held on Tuesday, at Winchester House, Old Broad-street, E.C., Mr. W. WENTWORTH WALKER, J.P. (the Chairman) presiding.

The SECRETARY (Mr. Walter Burr) having read the notice convening the meeting,

The CHAIRMAN, in moving the adoption of the report and balance-sheet, said that there were only a few figures in the balance sheet that he need refer to. The item of "other loans" on the debit side stood at £29,000, against £55,000 in the previous year. The bills payable stood at £9400, against £8000; the sundry creditors £12,000, against £19,000; and the liability on bills receivable under discount £14,000, against £20,000. On the credit side, the land and buildings stood at the same figure as in the previous year, while the stock stood at £154,000, against £194,000 last year; there was a small addition to the plant and machinery. The sundry debtors amounted to £80,000, against £83,000; and the cash at bankers was £11,000 against £10,000. From the profit and loss account they would notice that, as compared with last year, the general interest and discount had been reduced from £3500 to £3100; the salaries were £1600, against £2000; the general charges £656, against £1373; and the directors' fees £1900, against £1300, owing to the number being increased. The total profit on trading amounted to £16,600, against £32,700 last year, leaving a loss of £5700, against a profit last year of £3600. The shareholders had expressed dissatisfaction at much more favourable balance-sheets, and he should be surprised if they did not again express the same feeling; indeed, if he were in their place he should do the same, having regard to their necessarily limited knowledge of the trade and the affairs of the company, and to the fact that the price of lead had not greatly fluctuated during the past year. Before he sat down, however, he hoped to be able to modify that feeling. In taking a fair view of the conduct of their business they must remember that they were dealing with two metals—lead and silver—which had been during the last six years subjected to a greater depreciation in value than any other metal. Pig-lead was at one time £35 per ton, it was now £9 10s. Fine silver was at one time 62d. per ounce, it was now 29d. They took over the business in 1888, before the great fall in values commenced. They took stock in that year—lead at £13 5s., and silver at 46d.; they took stock at the end of last year—lead at £9 10s., and silver at 29d. The first year's trading was a profitable one, the decline in values not having commenced; trade was good, and their profit was a fair example of what they could again do under like circumstances. The following year the fall in the value of lead commenced, and during the last six years they had lost, by the depreciation of their stock of lead, nearly £50,000. The average price of lead during the past year did not vary much. It declined in value during the first six months 8s. 9d. per ton, but recovered that during the last half of the year. Unfortunately, they had an unusually heavy stock at the beginning of the year, in the sale of which they suffered considerably, but he would not dwell upon that point, because their loss this year was mainly from other causes which he would proceed to explain. In dealing with silver they were able pretty nearly to cover themselves from loss in the manner which they were not able to do in lead—that was to say, if they made a purchase of argentiferous lead they were able to sell the contents at once, without waiting for the lead to be desilverised, so escaping a loss from any fall in the market. But there was a loss of profit in connection with silver which had been very much accentuated during the last year, which they could not avoid. It was divulging no trade secret to inform them that in buying silver-lead the seller allowed to the buyer so many ounces of silver free. The allowance was made according to what was known as the Newcastle scale. In lead where the proportion of silver was very small the allowance was trifling; but in lead rich with silver this allowance was considerable. The practice of those allowances, no doubt, was adopted years ago, on the principle that it paid for the cost of desilverising. When silver was 5s. an ounce it did this, and left a handsome profit over. Their last stock-taking price, in December, 1894, was 29d., a fall of 17d. since 1888—equivalent to 12s. 9½d. per ton of lead—although the cost of desilverising remained the same; that was to say, upon every ton of lead desilverised they were handicapped to the extent of 12s. 9½d. per ton. Their loss of profit during the last six years on those silver allowances was £16,000, of which £9300 fell to last year. It was now his duty to inform them how greatly the depression in trade had affected the trading profits of the company. He had had statistics brought out at their different works of the decrease of their margins of profits as compared with 1893. The decrease worked out to an average of 5s. per ton on all their manufactures. The total tonnage manufactured was 47,000, which meant a decrease of profit of nearly £12,000. With regard to the shrinkage in the value of lead the statistics were favourable, the imports during last year being 27,000 less than in 1893. He told them last year that the lower price of silver would probably have that effect. On the other hand, the Spanish Senate had passed a Bill abolishing the export duty of $2 per ton upon silver-lead, which would naturally have the effect of increasing shipments to this country. On the whole, however, he considered that imports generally would not increase, and that they had seen the worst of their losses under that head. As to silver, there were two ways of avoiding losses—by getting an increase of the desilverising allowances or by ceasing desilverising altogether. They had been, and still were, in conjunction with other desilverisers, in negotiation with suppliers to get allowances more in accordance with the value of same before the fall in silver; so far, these negotiations had been fruitless. If they ceased to desilverise, what would occur would be that a large portion of their works at Newcastle and Deebank would be idle, and if they restarted at any time they would probably find difficulty in getting the necessary labour. Again, if they ceased buying silver-lead, and their large purchases were withdrawn from the market, the supply of that metal would be greater than the demand, and the price would fall, to the advantage of their competitors remaining in the trade. But that was not all; they would require to buy 29,000 to 30,000 tons of common lead per annum for their manufacturing purposes, and coming into the market for this large quantity would have the tendency to advance the price of this class of lead. The subject was full of difficulties, and it would have to receive the very serious consideration of the board at an early date. He had been favoured with an account of the proceedings of a meeting of some of the ordinary shareholders, lately held. As far as he could understand their main argument, they considered their position had been prejudiced by the reduction of capital in 1893, necessitating the reduction of the face value of their shares from £10 to £2 10s. That was not so; their position was unaltered. After paying a dividend on the preference shares, what remained was divisable among the ordinary shareholders, subject to what the directors might put to the reserve. He reminded the gentlemen that attended that meeting that they agreed to the scheme for the reduction of the capital. He noticed a committee was formed to wait upon the directors. The board would be very glad to receive them, and to discuss the different points raised. He assured them beforehand that the feeling towards that committee attributed to the board was erroneous. They had endeavoured to do the best they could for all classes of shareholders alike. It would be seen that Mr. Dale and himself retired from the board, and that, having regard to the series of bad years experienced, the other members of the old board (Mr. Somerville and Colonel Bailey) desired also to retire. Notices of nomination had been received on behalf of Mr. W. J. Cousins, Mr. E. Lee, and Mr. C. H. Tindal. The old directors recognised, from the number of proxies sent in against them, that they no longer enjoyed the confidence of a large number of shareholders, and they had come to the conclusion that the best course to pursue was to make their resignation absolute, and none of them, therefore, offered themselves for re-election. In conclusion, the Chairman claimed that the directors had not only safeguarded the shareholders' property, but had increased its value, kept together their magnificent connection, and minimised the company's losses under most adverse circumstances.

Mr. WILLIAM NEWALL seconded the resolution, referring to the fact that during the past year the company had more than maintained its former sales, and afterwards stated that since the works had been under the management of the directors, instead of, as before 1894, under a general manager, matters had considerably improved. There had been many economies effected, and at this time next year the board would be able to report a saving in the Chester works alone of not much, if any, less than £10,000. (Applause.) That policy had involved a great deal of hard work, and, after a time, he believed they would be able to make improvements and savings in other of their works. He also wished to state that the old directors had worked harmoniously together with Mr. Mason and himself, all of them having one object in view, namely, to make the concern what it ought to be, and what he believed it would soon become—a dividend-paying company. (Applause.)

Mr. MASON denied that he had sold any of his own shares. He regretted that four of the directors had resigned, as those gentlemen had given careful consideration to the suggestions which he and Mr. Newall had made from time to time, and, to a great extent, had adopted them. The financial prospects of the company required most urgent attention, and whoever might be appointed as directors would have, without a moment's delay, to take into consideration the very grave statements he should feel it his duty to lay before them. He warned the shareholders that if they let the resigning directors go, the company would be placed in a frightfully serious and awkward financial position.

Mr. W. J. COUSINS was pleased with the encouraging remarks made by Mr. Newall; but why should a body of directors wait some years for a new director to effect economies and make improvements? Harmonious working was all very well; but there were times when a certain amount of independence of action became necessary on a board. At the same time it was very pleasant to see that no obstacle had been placed in the way of the improvements suggested by the new members of the board. He moved: "That the reports and accounts be received, but not adopted."

Mr. E. LEE seconded the amendment. He believed the directors to be strictly honourable and business-like men, but they had made mistakes, and if the shareholders infused new blood into the board they would infuse prosperity into the affairs of the company.

The CHAIRMAN expressed his willingness to alter his motion in accordance with Mr. Cousins's proposal.

Mr. HARRISON declared that a worse possible moment for changing the directorate could not be chosen. He moved the appointment of a committee of investigation, to report to an adjourned meeting as to what possibility there was of doing anything with the present position of the company.

This amendment, however, was not seconded, and, therefore, fell to the ground.

Lord RUSSELL, Colonel BELL, and other SHAREHOLDERS urged the directors to stand by the company in the present difficulty.

The CHAIRMAN put the resolution, as amended, which was carried with one dissentient.

Mr. HOLLOWAY proposed the election of Mr. W. J. Cousins as a director, mentioning that 200 shareholders had given their proxies in favour of the resolution, representing 6678 preference and 6423 ordinary shares; the latter, of course, only carried moral support. Twenty proxies arrived too late for lodgment.

Mr. ADAM WALKER seconded the proposal, which was carried by a majority of four.

Mr. Lee was elected a director by a considerable majority, but the nomination of Mr. Tindal was negatived on a show of hands.

Mr. COUSINS demanded a poll on the latter question, and this was afterwards taken.

The CHAIRMAN positively declined to remain on the board, although urged to do so.

The auditors (Messrs. Chatteris, Nichols, and Co., and Messrs. Harmood, Banner, and Son) were re-appointed, and the proceedings terminated with a vote of thanks to the Chairman.

The result of the poll on the question of the election of Mr. Tindal will be declared some time next week.

THE METALLURGICAL INDUSTRY IN GERMANY.—The output of Germany for the year 1894 was as follows:—Lead and copper ore, 51,304 tons; iron ore, 2,093,007 tons; gold, silver and platinum ores, 13,935 tons; sulphur and alum ores, 315,115 tons; zinc ore, 14,712 tons; antimony and arsenic ores, 974 tons; chromium ore, 13,371 tons; cobalt and nickel ores, 1236 tons; manganese ore, 14,254 tons, slag from ores, 632,877 tons. The metal production of Germany, including Luxemburg, shows a great increase during the last 40 years, as following figures show:—

	1852. Tons.		1872. Tons.		1893. Tons.
Iron (pig)	249,348	...	1,988,395	...	4,986,003
Zinc	37,447	...	58,386	...	142,956
Lead	15,347	...	59,042	...	94,659
Copper	3,767	...	7,600	...	24,011
Tin	137	...	104	...	951
Silver	46	...	127	...	449
Gold (kilogrammes)	14	...	328	...	3,074
Or in ounces	450	...	1,054·52	...	98,829

—*Montan-Zeitung.*

ARIZONA GOLD ORES.—Dr. Theo. B. Comstock, in his capacity as director of the bureau of mines and geologist, has several tests of Arizona gold ores. He finds, as stated in his report to the board of regents of the University, that the territory has three classes of such ores: (1) Those which are really "free" ores; (2) An intermediate class, partly "free" and partly "sulphuret;" and (3) The "sulphuret" ores. Many miners, who get colours in the pan or horn spoon and who afterward get good assays from their ore, are disappointed at the low percentage saved in the milling process. This is usually because they have overlooked fine-grained black sulphide, which forms a considerable portion of the ore, although it may not be visible in the rock. Dr. Comstock is satisfied, from his investigations, that the working of gold ores in Arizona is yet in its initial stages, for there are deposits enough, rich enough and extensive enough, to tempt the investment of capital, guided by thoughtful and economical engineering talent, when once the ores are understood.

The Directors desire to draw special attention to the Report made on this Property by Mr. E. BATES DORSEY, the eminent Mining Engineer, whose celebrated lecture, foretelling the future of the Witwatersrandt Gold Fields, was delivered before the British Association, and published in the *Times* of September 19, 1889.

The LIST will OPEN on SATURDAY, the 9th inst., and will CLOSE on or before MONDAY, the 11th inst., at 4 p.m., for TOWN, and TUESDAY, the 12th inst., at 4 p.m., for COUNTRY APPLICATIONS.

THE EAST NIGEL GOLD MINING COMPANY, LIMITED.

Incorporated under the Companies Acts, 1862 to 1893,

Capital ... ... £125,000.

In 125,000 Shares of £1 each.

Of which the Vendor stipulates for an allotment of 50,000 fully paid Shares in part payment of the purchase consideration.

75,000 Shares are now offered for Subscription,

Payable 2s. 6d. on Application, 2s. 6d. on Allotment, 5s. one month thereafter; the balance in calls of not more than 2s. 6d., at intervals of not less than two months.

DIRECTORS.

G. D. PETERS (of Messrs. G. D. Peters and Co.), Moorfields, E.C. (Director of the Natal Bank, Limited), Chairman.
Captain W. N. LISTER, R.N.R., 2, Upper Avenue Road, N.W. (Director of the Shebra Gold Mining Company, Limited).
SAMUEL GREEN, 9, Stone Buildings, Lincoln's Inn, W.C. (Director of the Transvaal Coal Trust, Limited).
H. KNATCHBULL-HUGESSEN, M.P., Lynstead, Sittingbourne, Kent (Director of the Rhodesian Mining and Finance Company, Limited).
F. C. POISSON, 1, Tokenhouse Buildings, E.C. (Director of the Matabeleland Adventurers, Limited).
LOUIS CAMPBELL JOHNSTON, 1, Iddesleigh Mansions, S.W. (formerly Manager Ferreira Gold Mining Company, Limited).

BANKERS.

THE COMMERCIAL BANK OF SCOTLAND (LIMITED), 62, Lombard Street, E.C., Edinburgh, Glasgow, and Branches in Scotland.
THE NATAL BANK (LIMITED), 156 and 157, Leadenhall Street, E.C.

SOLICITORS.

FOSTER GRAVE and CO., 15, Finsbury Circus, E.C.

BROKERS.

BROWNING, TODD, and WHISH, 2, Royal Exchange Buildings, and Stock Exchange, London, E.C.
HOOK and BRADSHAW, York Building gs, and Stock Exchange, Liverpool.
A. RALPH BROWN, 48 West George Street, and Stock Exchange, Glasgow

SECRETARY and OFFICES (*pro tem.*)

C. C. CANNELL, 120, Bishopsgate Street Within, E.C.

PROSPECTUS.

The Company is formed to acquire and work the valuable Gold Mining properties on the Nigel Reef, known as the Cæsar and Draaikraal Blocks, situated in the Heidelberg District, Witwatersrand, South African Republic, and generally to carry on Mining and other operations in South Africa.

These properties consist of 63 Claims (equal to about 90 English acres), situate about 28 miles South-East of Johannesburg. The Claims are mostly located on the same farm as the Nigel Gold Mining Company. The Reef runs 20 degrees East of North and 20 degrees West of South, dipping at about 33 degrees West from the horizon, and has exactly the same appearance as the Conglomerate Vein in the Nigel Mine.

The properties have been thoroughly examined and reported upon by Mr. H. E. Junius, M.E., for the Vendor, but the Directors of this Company thought it advisable to have the independent report of Mr. E. Bates Dorsey, Mem. Amer. Soc. C.E. and M.A.S Mng.E., who says in his report (*inter alia*) in speaking of the Reef in this property, "In my opinion, as well as that of other experts, it is the same vein that passes through the Nigel property, and has not only the same general characteristics of formation, but where developed it varies in thickness and richness similarly to the Nigel Developments." "I am satisfied that the profits per ton to be derived from the Ores in your Mines will be equal to any other Company in the Transvaal."

"Three shafts have been sunk in the line of the outcrop near the Eastern boundary of the property on the Draaikraal tract. Shaft A is 130 feet deep on the incline of the vein. Shaft B is 100 feet in vertical depth, and Shaft C is 70 feet vertical depth; the ores taken from these shafts by me assayed an average of 3 ounces 7 dwts of Gold per ton. The vein in each shaft has a westerly dip, proving that it underlies all the Company's property."

Mr. Junius states: "The Reef in every way so far as gone down on bears out the characteristics of the Nigel Reef in the Nigel Mynpacht. The reef at its lowest depth assayed 4 to 11 ounces to the ton."

The Nigel Reef is by far the richest uniform Reef yet known in the Transvaal. The Nigel Company is one of the leading twelve gold producers of the Rand, *vide* monthly Witwatersrandt returns. The Reef is a conglomerate, and after attaining a certain depth, lies on a blue slate, the roof or top wall being sandstone.

The following dividends have been paid by the Nigel Gold Mining Company: 1894, 47½ per cent.; 1893, 50 per cent.; 1894, 50 per cent., and the £1 Shares of this Company are now quoted at £8 5s. per Share.

The total yield of the Nigel Gold Mining Company for the month of February amounted to 4461 ounces of gold; and this with only a 10 head Battery and the Cyanide process.

As a proof of the permanency of this vein, it may be stated that the Nigel Gold Mining Company have, in the Eastern section of their property, developed the reef to a depth of over 1100 feet.

The East Nigel property is very advantageously situated for cheap working. The rock is not hard, there is an abundance of water at short distance, and excellent coal is mined within 7 miles of the property.

The Railway now under construction from Durban to Johannesburg will run within 3 miles of the property, so that supplies of every kind will be secured at much less rates than at any other point of the Rand.

The Vendor has fixed the purchase consideration to be paid for the property at £85,000, payable (1) as to £50,000 in fully paid shares of this Company; (2) £25,000 in such shares, or cash or partly in such shares or cash, at the option of the Directors, under and subject to the conditions of the Contract of Sale; and (3) as to the balance of £10,000 in cash, thus leaving £40,000 available for Working Capital. The Vendor pays all expenses of promotion up to and including allotment, except legal expenses and the cost of Registration of the Company. One of the Directors, Mr. L. Campbell-Johnston, represents the Vendors, and is interested in the sale of the property.

The only Contract to which the Company is a party is one dated January 14th, 1895, and made between John William Lennon, of Capetown and Johannesburg, and John Wakeman Greenwood, as Trustee for and on behalf of this Company.

The above Contract, with a print of the Memorandum and Articles of Association, may be seen, together with the original reports and plans herein referred to, at the Offices of the Solicitors. Contracts have been, or may have been, entered into with third parties as to the Subscription of the Capital and promotion of this Company, to none of which the Company is a party. Applicants for shares will be deemed to have had notice of these latter Contracts, and to have waived their right (if any) to the dates of, names of parties to, or any other particulars concerning any such, whether under Section 38 of the Companies Acts, 1867, or otherwise.

Applications for shares should be on the accompanying form, and forwarded to the Company's Bankers, together with a remittance for the amount payable on application. The allotment will be made as early as possible after the subscription is closed, and in cases where no allotment is made the amount deposited on application will be returned at once, without deduction. If the number of shares allotted be less than that applied for, the surplus will be credited in reduction of the payment on allotment, so far as necessary, and any balance will be returned.

Prospectuses and Forms of Application may be obtained from the Bankers, Brokers, Solicitors, and at the Offices of the Company.

London, March 5, 1895.

THE EAST NIGEL GOLD MINING COMPANY (LIMITED).

FORM OF APPLICATION FOR SHARES.

(To be retained by the Bankers.)

No.....

To the Directors of THE EAST NIGEL GOLD MINING COMPANY (LIMITED).

GENTLEMEN,—Having paid to the Company's Bankers the sum of £....., being a deposit of 2s. 6d. per Share on Application for.....Shares of £1 each in the above Company, I request you to allot me that number of Shares, and I hereby agree to accept the same, or any less number allotted to me, upon the terms of the Prospectus herewith, and I agree to pay the balance as thereby required, and I authorise you to place my name on the Register of Shareholders in respect of such Shares. In the event of my receiving no allotment, the amount to be returned in full.

Signature .....
Name in full .....
Address .....
Occupation .....

To be written distinctly.

If a lady, state whether married or single.

Date .....1895.

The LIST for SUBSCRIPTIONS will OPEN on FRIDAY, 8th MARCH, 1895, at Ten a.m., and CLOSE the SAME DAY at Four p.m. for LONDON, and at Twelve Noon on SATURDAY for the COUNTRY.

"THIS PROPERTY IS CONSIDERED THE SHOW MINE OF THE WHITE FEATHER DISTRICT, AND IS ONE OF THE GEMS OF THE ENTIRE COOLGARDIE GOLD FIELDS."—MEIKLEJOHN (See Report).

THE WEST AUSTRALIAN EXPLORING AND FINANCE CORPORATION (LIMITED) OFFER FOR SUBSCRIPTION THE FOLLOWING ISSUE:—

GOLDEN CROWN (LIMITED),

WHITE FEATHER DISTRICT, COOLGARDIE GOLDFIELDS, WESTERN AUSTRALIA.

INCORPORATED UNDER THE COMPANIES ACTS, 1862 TO 1890.

Capital £100,000 in 100,000 Shares of £1 each.

Which are now offered for Public Subscription at Par. Payable Two Shillings and Sixpence per share on allotment, Five Shillings per share 15th May, 1895, and Five Shillings per share 15th July, 1895. The entire cash capital required by the Company (including £25,000 working capital) having been guaranteed by the WEST AUSTRALIAN EXPLORING AND FINANCE CORPORATION (LIMITED), and other responsible parties, the Directors will proceed to allotment on Monday, 11th March, 1895. Priority of allotment will be given to Shareholders in the WEST AUSTRALIAN EXPLORING AND FINANCE CORPORATION (LIMITED), and the remaining shares will be allotted to other applicants.

DIRECTORS.

The Hon. HOWARD SPENSLEY (formerly Solicitor General of Victoria, Australia, and Chairman Mainland Consols (Limited)), 4, Bolton Gardens West, South Kensington, S.W.—CHAIRMAN.

Lieut.-General The HONOURABLE SOMERSET J. GOUGH-CALTHORPE (Director West Australian Exploring and Finance Corporation, Limited), 16, Queen's Gate Place, S.W.

LORD DOUGLAS OF HAWICK AND TIBBERS (late of Perth, Western Australia), Surbiton.

Lieut.-Colonel EDMUND C. CRADOCK-HARTOPP (Director Mainland Consols, Limited), Copsewood, Walton-on-the-Hill, Epsom.

WILLIAM LONSDALE, Esq. (Director Kanowna Gold Mining Company, Limited), Hutton Roof, Eastbourne.

Bankers—London: PRESCOTT, DIMSDALE, CAVE, TUGWELL, and CO. (LIMITED), 50, Cornhill, E.C. Australia: THE UNION BANK OF AUSTRALIA (LIMITED), Perth, and other Branches in Western Australia.

Brokers—Messrs. HAGGARD, HALE, and PIXLEY, 26, Austinfriars, E.C., and Stock Exchange; Messrs. HARDIE and TURNBULL, 42, George Street, Edinburgh.

Solicitors—Messrs. BURN and BERRIDGE, 11, Old Broad Street, E.C.

Consulting Engineers in Western Australia—CHARLES KAUFMAN, Esq., M.E., St. George's Terrace; Perth.

Auditors—Messrs. MONKHOUSE, GODDARD, and CO., 29, St. Swithin's Lane, E.C.

SECRETARY and OFFICES (pro tem.).

C. F. SHACKEL, Esq., 54, OLD BROAD STREET, LONDON, E.C.

PROSPECTUS.

This company has been formed for the purpose of acquiring and working three gold mining leases now known as the Golden Crown group, situate in the celebrated White Feather district of the Coolgardie Goldfields, Western Australia. The property includes the three leases known as the Golden Crown, Cambria, and Salisbury, numbered respectively 162 and 314 (now consolidated into lease number (645), and 472, comprising a total area of 26 acres or thereabouts.

Mr. W. Clarke, M.E., of Coolgardie, in his reports on the Golden Crown, Cambria, and Salisbury Mines, made several months ago, before the more recent remarkable developments, and submitted by the vendors to the West Australian Exploring and Finance Corporation (Limited), amongst other things, states:

Golden Crown.—"Two shafts and one open cut have been sunk. No. 1 shaft is sunk to a depth of 32 feet on underlay of lode, which is 1 in 3. East lode is 1ft. to 2ft. 6in. wide, showing gold in both ends of shaft from surface to bottom. In bottom of this shaft I have broken bulk samples of stone from reef, which here is 2ft. 6in. wide, and obtained a result of 12oz. 13dwts. 10grs. to the ton. Open cut is situated one chain south of No. 1 shaft, and is eight feet down in deepest place. Lode here is 22in. wide, and bulk samples taken by me gave a result of 10oz. 7dwts. per ton. No. 2 shaft is two chains south of No. 1, 13ft. 6in. deep. Size of lode here varies from 18in. to 2ft. 4in., and shows gold in both ends from surface to bottom. Bulk samples taken from bottom gave 11oz. 7dwts. 10 grains to the ton. Strike of lode is north, 20 degrees west, and is traceable on surface from southern boundary to within about two chains of northern boundary, showing gold on outcrop for the whole distance."

Cambria.—"There are two shafts on this property, No. 1 being now 23ft. 3in. deep. Size of lode in bottom is 3ft. 4in., underlay 1¼ in 3. East reef shows nice coarse gold in end of shaft, and bulk sample gave a result of 2oz. 4dwts. per ton. No. 2 shaft, about five chains south of No. 1 is down 15ft. 6in., and only just cut reef, which is 2ft. 1in. wide; bulk sample gave result of 1oz. 19 dwts. per ton. Strike of lode is north 10 degrees west. . . . The whole of the stone is a good milling ore, entirely free from base metals.

"I consider the reefs on these properties to be true fissure lodes, and will, with small outlay for battery, &c., pay handsomely at once. The above-mentioned results, obtained from bulk samples, which were a fair average of the whole reef in each instance, and only dollied and washed, speak for themselves and render further comment from me unnecessary."

In regard to the Salisbury, Mr. Clark, among other things, reports: "This lease is situated between the Cambria and Kanowna claims, as shown in plan accompanying my report on Golden Crown and Cambria properties, where it will be seen that the Cambria reef must run through this lease, and a shaft is now being sunk to cut this reef, which should be done in from 30ft. to 35ft. The Golden Crown reef must also go through portions of this lease, but at time of my visit no work had been done to cut it. Both of these reefs having an easterly underlay, and, being on your western boundary, you will have the benefit of the whole of these lodes in your property, and as they have both shown good gold wherever opened up on, there can be no doubt as to there being payable when cut,

"Three chains from your eastern and five from your northern boundary a leader has been opened up on. Good gold has been obtained here, and sample taken by me gave a result of 5oz. 4 dwts., 3grs. per ton. One chain and 30 links north, 40 degrees west, a second leader has been opened up, which also shows nice coarse gold, and samples tried by me gave a result of 6oz. 9dwts. 17grs. per ton. . . . A rich patch of alluvial has been worked on this lease, and there is no doubt that this gold has been shed from the many reefs and leaders above referred to.

"Timber is easily available for all mining purposes, and water should be got at a shallow depth.

"From its position I am sure that this property must be a very valuable one, and only a small amount of capital will be required for sinking shafts to cut the two principal reefs."

Mr. John Meiklejohn, late manager of the Golden Crown, in a recent report for the West Australian Exploring and Finance Corporation (Limited), states: "This property is considered the show mine of the White Feather district, and is one of the gems of the entire Coolgardie goldfields."

"The property contains two reefs, one reef being originally named the Cambria, and the other the Golden Crown, but both are now comprised in Lease 645."

"The Cambria is a strongly-defined lode running N. by 10 deg. W., with an easterly underlay. Two shafts have been sunk on this reef, one close to the northern boundary and other close to the southern boundary, proving the reef at each end of the lease. The northern shaft is sunk to a depth of 20 ft., and shows a true fissure vein with an average width of 3 ft. 6 in., dollying stone showing in various parts of the shaft, the bulk of the stone carrying fine gold. The southern shaft is sunk 43ft., the reef here being 4ft. 6in. at the bottom, and exposing a laminated stone of a splendid free-milling character—the roof throughout being permeated with fine gold. The latest bulk samples taken by me from the various parts of this reef averaged 2oz. 3dwts. per ton."

"The Golden Crown reef is the richer reef, and on account of that the most labour has been expended on it. This is a true fissure vein running parallel to the Cambria, and with the same underlay. An open stope has proved very rich gold for over 500ft. in length, showing high-grade ore the entire extent, gold being visible freely in the stone. The south shaft has been sunk 59ft., and shows here a strongly-defined lode averaging 3ft. in width, the gold being evenly distributed throughout. The northern shaft is down a depth of 40ft., and driven on for some distance, displaying very rich stone, averaging 2ft. 8in. in width. During the time that the work has been in progress a great deal of gold has been extracted by dollying, out of which all expenses have been paid, and a handsome profit in addition secured. A splendid feature in this reef is that as depth is attained it greatly improves, as the best gold that has been met with so far shows in the deepest part of the workings.

"A plentiful supply of good mining timber is procurable within easy distance of the property. The water difficulty at the White Feather district is practically settled, as many of the surrounding mines in this neighbourhood have got water from depths of 50ft. and upwards."

"I must congratulate you on securing such a valuable property. I assure you that the future of this mine is being watched with eager interest by all on the Coolgardie Gold Fields, as it is known as one of the richest yet discovered."

The Manager of the Coolgardie branch of the Union Bank of Australia (Limited), who took over the Golden Crown property on behalf of the West Australian Exploring and Finance Corporation, in a letter to the Head Office in London, wrote: "A mine manager has been temporarily appointed to superintend the working of the leases. . . . I am informed that the company's representative is expected on the fields shortly, and shall be pleased when he arrives; meantime, the men have been employed sinking a main shaft on the Golden Crown, and I have had the shaft, from which the prospectors were getting the gold, battened down, as the stone is too rich to raise, unless some responsible person is on the property."

Mr. Charles Kaufman, M.E., who was specially instructed to examine and report on the Golden Crown Lease for the West Australian Exploring and Finance Corporation (Limited), in a cable report received by the Corporation, states:—"Golden Crown Mine situated White Feather, a distance of 40 miles from Coolgardie, N.E. The elevation of mine is 1500ft. The vein formation favourable. The country rock is conglomerate diorite, a true and well-defined fissure vein running north and south. The vein dips east at an angle of 45. Average width of the vein is 2ft. 6in.—a well-defined vein. The vein has been proven up for a length of 550ft. There are two shafts in the mine. The shaft is on the incline of the vein 60ft. Have driven levels for a distance of 12ft.—distance from the shaft to another inclined shaft 205ft. Depth of incline, 45ft. The level is driven in 22ft. Winze has been sunk 12ft. The grade of ore is very good. Open cuts and trial shafts 70ft. and 90ft. by 9ft. deep, full of visible free gold; rich quartz against the footwall and against the hanging wall I estimate the ore in sight at 4000 tons, 3 ozs. 10 dwts. to the ton. Measurement of the dump, 560 tons. I estimate the value of the ore at £56,000 in sight, in addition to the alluvial gold found outside the vein formation, quite unexpected in extent."

Having regard to the valuable developments and the extent of the ore already in sight on the Golden Crown lease, as appears by the report of Mr. Kaufman, the small purchase price in proportion thereto, and the opinion of Mr. Meiklejohn, that this lease is one of the gems of the entire Coolgardie Goldfields, the directors feel justified in expressing their confidence that (irrespective of the value of the Salisbury lease) handsome dividends will accrue to the shareholders as soon as the property is equipped with an appropriate plant of crushing and milling machinery, which it is their intention to erect forthwith.

The purchase price of the property has been fixed by the West Australian Exploring and Finance Corporation (Limited), who are the vendors and promoters of the company, at £75,000, payable as to £45,000 in cash, and as to £30,000 in cash or fully-paid shares, or partly in cash and partly in fully-paid shares. £25,000 will be provided for working capital. The vendors have agreed to pay all the expenses of forming and establishing the company up to allotment, other than the legal expenses of and incidental to the registration of the company.

The following contracts have been entered into:—An agreement dated the 4th October, 1894, between David Murray of the one part and the West Australian Exploring and Finance Corporation (Limited) of the other part; and an agreement dated the 5th March, 1895, between the West Australian Exploring and Finance Corporation (Limited) of the one part; and Charles Lloyd, as Trustee for this Company, of the other part. Agreements have been entered into with third parties in respect of the formation of the company and the underwriting of part of its capital, to none of which the company is a party, and applicants for shares will be deemed to have notice of the contents of these, and to have waived their right (if any) to particulars thereof, whether under Section 38 of the Companies Act, 1867, or otherwise. The above-mentioned agreements, original reports, and Memorandum and Articles of Association can be inspected at the offices of the Company's Solicitors.

Applications for shares should be made on, or in accordance with, the form enclosed in the prospectus, and sent with the required deposit to the Bankers of the Company. If the number of shares applied for by any applicant be not allotted, the surplus of the amount paid on deposit will be appropriated towards the amount due on allotment; and where no allotment is made the deposit will be returned in full.

Prospectuses and Application Forms may be obtained at the Offices of the Company, and also of the Bankers and Brokers.

London, 6th March, 1895.

METAL TRADE STATISTICS.

FEBRUARY, 1895.

COPPER.

(From Messrs. Henry R. Merton and Co.'s Circular for February, 1895).

	Feb. 28, 1895.	Feb. 16, 1895.	Jan. 31, 1895.	28TH FEBRUARY. 1894.	1893.	1892.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
STOCKS IN ENGLAND AND FRANCE:— Liverpool and Swansea, Chili Bars	37,682	37,502	37,150	30,353	31,275	27,902
" " Chili Ingots	750	775	800	556	59	320
" " Chili Ores and Regulus (fine)	15	2	20	312	264	627
" " Other Stuff (fine) & English Copper	6,275	6,535	6,788	4,787	7,239	9,146
London (including landing)	5,148	5,253	5,353	5,366	7,766	8,717
Stocks of fine Copper in Havre, Rouen, Bordeaux and Dunkirk	1,570	1,342	937	2,390	6,317	6,619
	51,440	51,914	51,048	43,764	52,920	53,331
ADVISED FROM CHILI by Mail and Cable, Fine Copper	2,500	2,600	2,700	2,650	3,900	2,750
" " Australia, by Mail and Cable, Fine Copper	1,250	1,200	1,100	750	600	700
	55,190	55,714	54,848	47,364	57,420	56,781
Price of Chili Bars and G.M.B.'s per ton	£39 0 0	£39 12 6	£40 5 0	£41 0 0	£45 12 6	£44 5 0

COMPARATIVE STATEMENT.

Month ending	Stock in England and France and Afloat thereto from Chili and Australia.	Price of G.M.B.	Arrivals: England and France.	Other European Ports.	England & France from Spain and Portugal (excluding Pyrites).	Other Countries.	Charters from Chili to Europe.	Shipments from Australia to London.	Total Supplies.	Total Deliveries. *
			From N. America.							
	Tons.		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
28th February ... 1895	55,190	£39 0 0	2,430	1,920	1,542	1,519	1,550	850	9,811	9,269
31st January ... "	54,848	40 5 0	4,626	1,229	773	2,414	1,850	750	11,452	11,268
31st December ... 1894	54,664	41 0 0	3,839	1,048	1,836	2,566	2,300	650	11,839	9,470
30th November ... "	52,295	39 15 0	2,103	1,895	1,535	1,235	1,250	500	8,518	9,011
31st October ... "	52,788	40 15 0	2,819	3,779	1,334	1,088	1,850	600	11,520	10,786
30th September "	52,434	41 10 0	1,808	3,630	909	1,573	1,500	450	9,868	10,241
31st August ... "	52,407	40 7 6	3,628	4,641	1,494	3,973	2,000	550	16,284	14,602
31st July ... "	51,325	38 2 6	3,455	2,365	1,109	1,816	1,000	550	13,001	10,509
30th June ... "	50,072	38 5 0	2,726	2,945	828	3,522	2,500	650	12,926	12,162
31st May ... "	47,880	38 17 6	2,778	2,759	1,576	3,023	1,650	550	12,884	12,945
30th April ... "	46,809	39 17 6	3,559	2,811	1,057	2,977	1,650	600	12,654	11,342
31st March ... "	46,597	40 15 0	2,546	3,096	1,184	1,699	1,500	550	10,575	
			35,763	32,118	15,207	27,215	21,200	7,050	138,853	131,047
28th February ... 1894	47,364	41 0 0	3,198	3,276	647	764	1,950	550	10,385	10,173
31st January ... "	47,152	41 5 0	4,921	2,609	1,477	890	1,800	500	11,947	12,090
31st December ... 1893	47,295	42 15 0	3,848	4,252	1,687	852	2,700	500	15,839	13,271
30th November "	46,827	43 0 0	6,146	4,388	1,332	5,684	1,400	450	19,400	20,613
31st October ... "	46,040	42 2 6	7,097	6,375	999	3,082	2,200	1000	20,853	20,517
30th September "	47,564	41 17 6	7,940	3,971	1,255	621	1,700	600	16,087	16,144
31st August ... "	47,981	41 12 6	4,272	2,888	1,535	645	1,200	400	10,940	13,462
31st July ... "	50,483	41 12 6	4,236	2,412	614	2,607	2,400	400	12,669	12,141
30th June ... "	49,955	43 10 0	1,914	2,310	1,958	2,548	1,850	550	11,130	11,126
31st May ... "	49,951	43 2 6	3,179	987	1,291	1,271	1,750	450	8,928	11,071
30th April ... "	52,494	44 10 0	2,521	905	749	1,084	1,600	550	7,459	10,636
31st March ... "	55,271	45 5 0	1,312	687	1,877	3,291	650	600	8,417	10,566
			50,584	34,860	15,471	23,339	21,050	6,550	151,854	161,910
29th February ... 1892	57,420	45 12 6	1,821	632	1,170	2,785	3,000	450	9,858	10,945
31st January ... "	58,507	45 2 6	3,266	455	1,453	4,899	1,000	700	11,775	9,011
31st December ... 1892	58,745	46 17 6	3,235	542	2,565	3,008	2,400	300	12,238	9,991
30th November "	53,498	47 17 6	5,832	633	690	1,725	1,500	700	8,080	10,640
31st October ... "	56,076	45 12 6	752	850	762	2,923	1,600	500	7,436	8,840
30th September "	58,482	44 3 6	1,048	535	1,619	3,315	1,750	400	7,667	9,503
31st August ... "	59,718	44 7 6	2,887	324	965	2,583	1,900	400	9,059	9,079
31st July ... "	59,738	44 17 6	2,893	160	2,146	3,744	2,400	600	12,043	8,889
30th June ... "	56,804	44 17 6	2,909	418	2,545	4,749	1,600	300	12,345	9,676
31st May ... "	53,965	46 7 6	2,841	664	2,288	1,215	2,150	500	9,658	9,521
30th April ... "	53,828	45 12 6	1,963	1,284	2,422	2,968	1,500	100	10,242	10,725
31st March ... "	54,311	46 5 0	2,260	1,567	2,012	2,013	1,750	300	10,002	12,472
			28,702	8,382	20,427	34,990	22,600	5,300	120,331	119,892

* Including Chilian and North American for all Europe.

TIN.

(From Messrs. A. Strauss and Co.'s Circular for February, 1895).

	31st Jan. 1895.	28th Feb. 1895.	28th Feb. 1894.	28th Feb. 1893.
	Tons.	Tons.	Tons.	Tons.
Straits and Australian spot	9,393	9,956	5,239	3,117
Ditto ditto landing	764	362	1,105	1,233
Straits, afloat	3,915	3,320	3,515	3,135
Australian, afloat	505	446	570	550
	14,577	14,084	10,429	8,035
Banca, on Warrants	1,586	1,113	427	680
Billiton, spot	1,671	1,680	525	539
Ditto afloat	756	1,030	1,948	1,012
Straits, spot in Holland	618	778	288	234
	19,208	18,685	13,617	10,500
Total afloat for United States	2,890	1,800	915	2,650
Estimated stock in America	2,250	2,615	400	3,415
Total	24,348	23,900	14,932	16,565
Prices of Straits and Australian	£81 0 0	£80 0 0	£85 15 0	£92 5 0
Deliveries during the month in London	1,406	1,399	1,791	1,384
Ditto ditto Holland	790	765	765	697
	2,196	2,164	2,556	2,081

Shipments during the month from Straits to London ... ... 1,725 Tons

" " " Australia to London ... ... 152 "

" " " London, Havre, and Holland to America ... 1,325 "

" " " Straits to America ... ... 350 "

" " " Australia to America ... ... — "

" " " Straits to Continent ... ... 1,525 "

	During 12 months ending Feb. 28, 1895.	During 12 months ending Feb. 28, 1894.	During 12 months ending Feb. 28, 1893.	During 12 months ending Feb. 28, 1892.	During 12 months ending Feb. 28, 1891.
Shipments from Straits to London	26,652	26,780	20,633	17,548	13,279
Shipments from Straits to America	6,425	2,540	9,960	8,652	9,215
Shipments from Straits to Continent	12,847	11,088	8,155	4,700	4,620
Ditto from Straits to Europe and America	45,964	41,348	35,748	30,930	27,144
Shipments from Australia to London	3,908	4,497	4,438	4,432	5,018
Shipments from Australia to America	1,100	300	700	800	805
Deliveries of Tin in London	17,549	19,972	14,069	16,969	16,342
Deliveries of Tin in London and Holland	26,362	27,702	22,373	24,998	24,225
Ditto in London, Holland, France, and U.S.	53,919	57,575	45,627	46,725	44,145

Banca in Trading Company's hands and afloat, 5213 tons.

PRICES; Straits and Australian, spot ... ... £80 0 0 three months ... £80 7 6

English Common ingots ... ... £3 0 0 refined £5 0 0

Banca ... ... £ 10 0 Billiton ... .. £ 0 0

LATEST FROM THE MINES.

CABLEGRAMS AND TELEGRAMS.

AFRICAN ALLUVIAL.—Copy of cablegram from the manager (Mr. Niness):—"Alluvials subjected to a thorough test give a better result than we expected. Diggers have been making small profits all the time. Sluicing largely will leave a good margin of profit, Conditions and prospects for the workings are most encouraging."

AMANA (Wentworth).—The following cablegram has been received from the mine:—"We have started the puddler to-day, which works well. The 5 stamp mill will be finished this week. This mine is now in a position to give a constant supply of payable alluvial."

AUSTIN GOLD.—A cable to hand from the manager reports everything most satisfactory. Machinery has arrived on the mines, and erection proceeding smartly. A further cable has been received ordering monthly supplies of cyanide. Letters by last mail state that crushing would probably commence during March.

BARRETT.—February gold returns, 445 ounces. Mining operations have been greatly hindered throughout the month by bad weather, but no serious damage to any of the permanent works is reported, and March prospects are good.

BALAGHAT-MYSORE.—Return for February: 150 tons of quartz produced 81 ounces of gold. The gold obtained in January realised £365.

BAYLEY'S No. 2 SOUTH.—The secretary notifies that a telegram has been received from the property as follows:—"Discovered new reef through the whole of the property 4 feet wide, and making stronger, showing good gold. Prospects excellent. The original lode shows continuous improvement."

BLACKETT'S CLAIM.—Secretary informs us that he has received a cable from Mr. Leech, the manager of the mine, stating:—"The mine is looking well."

BLUE SPUR AND GABRIEL'S GULLY.—A cablegram received from the manager of the Blue Spur and Gabriel's Gully Consolidated Gold Company (Limited) reports that the amount of gold won for the period from 6th December, 1894, to 28th February, 1895, was 888 ounces.

BURMA RUBY.—The returns for February received by telegram are as follows:—"For the fortnight ended February 16, 4800 loads washed, producing rubies valued at Rs.10,000. For the fortnight ended March 2, 4500 loads washed, producing rubies valued at Rs.24,000."

BAYLEY'S REWARD CLAIM.—The following cablegram has been received from the head office at Melbourne:—"160 ounces, 110 tons; no rain yet worth recording; awaiting a reply from Matthews." The London office has been in communication by cable with the board at Melbourne with a view to obtaining as complete information as possible upon the present situation and prospects of the mine, and the Melbourne board is awaiting a statement from the manager at the mine before replying to the communciation of the London office.

BRILLIANT.—Crushed 3603 tons for 3609 ounces.

BROKEN HILL PROPRIETARY.—The directors report that for the week ending the 7th inst., 8154 tons of ore were treated, yielding 701 tons of lead, containing 215,957 ounces silver; also 1550 tons treated by amalgamating and leaching plants, producing 17,114 ounces silver. The price of the shares in Melbourne is £1 17s. buyers.

CHIAPAS.—Cablegram received March 7 from the mine:—'During February the concentrating mill ran 17 days; 740 tons of ore were crushed, yielding 36 tons of concentrates. Have been obliged to shut down for annual repairs. Stamps ran 27 days; 510 tons of tailings were crushed, yielding 114 ounces of gold. Have forwarded bullion for transmission; weight, 147 ounces." The 147 ounces is made up of 114 ounces February, and 33 ounces January.

CITY AND SUBURBAN.—Last month's crushing yielded 9084 ounces, against 10,219 ounces for January.

CROWN REEF.—Results for February:—Yield in smelted gold from 120 stamp mill, 6204 ounces; yield in smelted gold rom 120 stamp cyanide works treating tailings and concentrates, produced by the mill, 2989 ounces; yield in smelted gold from old cyanide works, treating accumulated stock of tailings and slimes, 822 ounces; total, 10,015 ounces.

CHAMPION REEF.—Last month's return: 3800 tons of quartz produced 5404 ounces of gold; 1000 tons of tailings produced 232 ounces of gold; total production for the month, 5636 ounces of gold.

COLOMBIAN HYDRAULIC.—The directors have received the following cablegram of the result of run No. 199:—"We have cleaned up after a run of 58 days, during which time we have washed 900 hours. The gross returns are £1200. The net profit is £100." The above is the result of the first run at the new opening. The cablegram is dated 29th January, and has been delayed in transmission by the revolution."

COROMANDEL.—The following cablegram has been received from the mine, giving the result of the first trial crushing:—"500 tons quartz produced 217 ounces of gold."

CUMBERLAND.—The following cablegram has been received from the mine:—Have commenced to stope No. 4 level north. No. 5 level north is driven 470 feet; mill commenced running. Tailings works recovered 487 ounces from 574 tons at a cost of £340. The estimated value is £1100."

DON PEDRO.—A telegram advises:—"Return for February, 1350 oits. (155 ounces). Accident to pump caused stoppage; plunger pole fractured; under water; fixing new lift."

EL CALLAO.—Messrs. Baring Brothers and Co. (Limited) received the following telegram from El Callao Mining Company:—"501—525 ounces of gold produced by El Callao Mine for past month, and 1126—1150 ounces by the Colombia Mine.

ELKHORN.—The following is the cabled return for the month of February:—Mill worked 27 days and crushed 1022 tons; bullion produced in the mill, $20,645; 80 tons of smelting ore sold, $5332; total produce, $25,977; total expenses, $20,559; estimated profit for the month, $5418, or, at $4·85 to £ sterling, £1117.

EMERALD REWARD.—A telegram has been received from Geraldton advising the new boiler has left there for the mine.

EASTLEIGH.—The manager cables:—"40 stamps running 28 days produced 2184 ounces gold.

ELKHORN.—Bullion produced in the mill for the week ended March 2, 8000 ounces.

FORBES REEF.—The result for the month of February was 68 ounces, against 116 ounces.

GOLCONDA.—The manager cables:—"Struck a very rich body of ore, north winze."

GOLD COAST DEVELOPMENT SYNDICATE.—The following cablegram has been received from Mr. Bridges, the company's agent at Axim:—"Mr. A. L. Pearse, M.E., has inspected, and recommends several properties."

GELDENHUIS MAIN REEF.—Result of February crushing:—3107 tons crushed yielding 1328 ounces of gold; 2000 tons treated yielding 560 ounces of gold; total, 1888 ounces of gold. Profit for the month, £2460.

GINSBERG.—Result of February crushing:—1089 tons crushed yielded 1002 ounces of gold.

GEORGE GOCH AMALGAMATED.—The directors have received the cable advising work done during February:—"5311 tons crushed yielding 1859 ounces, and from tailings 1393 ounces."

GRASKOP.—The following cablegram has been received from the manager at Graskop, dated 2nd inst.:—"Have had to stop working mill during the month of February. We shall run the mill early in March."

GREAT FINGALL REEFS.—The following cablegram has been received:—"Shaft No. 5 crosscut on the 50 feet level driven 10 feet in solid reef; not yet through. Assay value, 2 ounce 10 dwts. per ton."

HAMPTON PLAINS.—The following cablegram has been received from the manager, March 5:—"The West Australian Gold Fields (Limited) prospecting party have discovered another reef carrying good gold on block 50, and have applied for 100 acres under their concession."

HAURAKI.—The directors have received the following telegram from the manager, viz.:—"The shaft has been sunk 8 feet. The mine looks splendid. Assays of ore yield from 2000 ounces of gold per ton. The profit for the month will be about £5200."

HENRY NOURSE.—Crushing for February 27 days only 2116 tons, produced 1616 ounces, cyanide works 1500 tons, produced 676 ounces, total 2292 ounces.

HOLCOMB VALLEY.—A cablegram (delayed in transmission) from the manager states:—"February 27. Work now proceeds throughout the whole 24 hours.—Victor shaft. The water in the shaft is steadily rising. Prospects are most encouraging. Further information by cable later."

ISLAND BLOCK.—A cablegram has been received to the effect that during the last six weeks 200 ounces of gold have been obtained, the total expenses at the mine being about 75 per cent., exclusive of royalty 8 per cent.

JUBILEE.—Result of last month's crushings of 3045 tons yielded 1621 ounces of gold, and from tailings 420 ounces.

KOFFYFONTEIN.—2800 carats were recovered during February.

KABOONGA.—The following cablegram has been received from the manager at the mine:—"Rise 75 feet. Have cut a small vein at this point showing gold. Drive 127 feet. Work proceeding steadily."

KANGARILLA.—Furnace. By cable it is intimated that the furnace for treating the ore will be finished on or before the 20th inst.—Development. Assays from ore in No. 2 level south (sample): Antimony 10 per cent., zinc 3 per cent. Mr. Thorpe adds:—"The great decrease of zinc and its replacement by antimony is a hopeful sign, and I trust will be permanent."

KAPANGA.—Telegram: "The crosscut at the 800 has been driven 20 feet, making 380 feet. There is nothing new to report from other parts of the mine."

LINDSAY'S.—The local board in Melbourne cables: "Work now proceeding with the greatest possible vigour. Have appointed Mr. E. Davenport Cleland manager. Will report as soon as possible developments."

MEYER AND CHARLTON.—During February crushed 3061 tons obtained 19,590 ounces of gold; 568 ounces also recoversd from tailings; total, 2527 ounces; estimated profit, £3980.

MESQUITAL DEL ORO.—The following cablegram, giving the result of the February mill run, has been received from the mine:—"50 stamps rans 625 hours (26 days 1 hour; quantity of ore crushed 2818 tons; bullion produced at clean-up 753 ounces; value about £2470."

MONTANA.—By cablegram from the mine the directors are informed that the total output for February was 4640 tons of ore which contained gold, 2070 ounces; and silver, 32,350 ounces. The estimated realisable value of the same is $59,600.

MOUNT MORGAN (Queensland).—Results from the month of February: Tons chlorinated, 7065 tons; gold returned, 8198 ounces.

MYSORE WYNAAD CONSOLIDATED AND MYSORE WEST.—Tank block. The mining manager telegraphs on the 5th instant, that after a mill run of 240 hours, 200 tons were crushed, 100 tons of which were quartz, and yielded 77 ounces of gold. London office note. The above is mostly stuff cleared from the levels on completion of the skip road.

MOZAMBIQUE COMPANY.—It is announced that Mr. Charles Algernon Moreing and Mr. Thomas Burrell Bewick, jun., have resigned their seats at the board of the Companhi a de Moçambique. The receipts for the month of November were £3598, calculated at £220 per conto of reis.

MAINLAND CONSOLS.—A cablegram has been received from the solicitors, in Western Australia, stating that the property has been duly transferred to the company.

MAY CONSOLIDATED.—The yield of gold during February was 2485 ounces from 6200 tons crushed; mill running 7 days. Cyanide, 1660 ounces from 5320 tons. The January yield was 3584 ounces.

MILLS' DAY DAWN UNITED.—A cablegram from Charters Towers states:—"Have crushed (during the fortnight) 1387 tons of quartz for 1762 ounces of gold. Work at the Burdekin mill has been suspended for four days, owing to floods. The approximate value of this return is £6050."

MYSORE.—Return for February: 5140 tons of quartz produced 4140 ounces; 4215 tons of tailings produced 664 ounces; 1070 tons of tailings treated by cyanide process produced 149 ounces; total production for the month, 4953 ounces. The gold obtained in January realised £20,299.

MYSORE REEFS (Kangundy).—64 tons of quartz crushed yielded 90 ounces of retorted gold.

NEW CHIMES.—The return for January is as follows:—"40 stamps ran for 29 days, crushing 4060 tons or ore, yielding 2225 ounces 10 dwts. of gold and 35¾ tons of concentrates, assaying 4 ounces 16 dwts. to the ton; 2470 tons tailings yielded 431·1 ounces of gold. Last month's crushing yielded 2445 ounces of gold.

NEW QUEEN GOLD.—Result of crushing for past fortnight:—"270 tons, yielding 500 ounces gold. Have drawn upon you for £1100."

NEW JAGERSFONTEIN.—A cablegram has been received from the head office at Kimberley, reporting results for the month of February, as follows:—"Diamonds estimated at £35,500; less estimated expenses, £19,250; decrease of blue (3500 loads at 1s. 6d.), £262 10s.; profit, £15,987 10s."

NEW ST. AUGUSTINE.—Copy of cablegram from the mine, dated March 1:—"Blue ground. Have discovered a good body of ore in two drives under the 250 feet level. Mine looks splendid."

NIGEL.—Last month's crushing yielded. Battery, 2244 ounces; cyanide, 1817 ounces; tailings residues, 400 ounces. The production for January was 3841 ounces.

NINE REEFS.—Last month's return of gold: 303 tons crushed yielded 146 ounces gold.

NUNDYDROOG.—Return for February: 2580 tons of quartz produced 2947 ounces of gold; 600 tons of tailings produced 111 ounces of gold; total production for the month, 3058 ounces of gold. The gold obtained in January realised £11,652.

NEW CLEWER ESTATE.—Results for February: Crushed 1484 tons, yielding 720 ounces of gold.—From cyanide works: Treated 1330 tons, yielding 987 ounces of gold; total yield, 1707 ounces of gold; total value, £4290; estimated profit for the month, £1700; the labour is scarce.

NEW KLEINFONTEIN.—The mill crushed 1710 ounces; treatment of tailings, 784 ounces; 5100 tons developed. "Cause of decrease, mill only working 25 days, battery engine defective. New engine will start March 15." For January the yield was 2712 ounces.

OOREGUM.—Last month's return:—"4004 tons of quartz produced 4391 ounces of gold; 4482 tons of tailings produced 991 ounces; total production for the month 5382 ounces.

ORIENT GOLD.—The secretary advises receipt of cablegram dated Cairns, Queensland, 4th March, as follows:—"Battery excavation finished, laid rails, fixed blower, tunnel driven 7 feet."

OTTO'S KOPJE DIAMOND.—Mr. Lisle cabled from Kimberley on the 2nd inst.:—"Work will be resumed first thing on Monday morning.

PRINCESS ESTATE.—2950 tons were crushed during February, yielding 1450 ounces of gold from plates (smelted) and 326 ounces of gold from tailings. January yield was 1960 ounces.

PILBARRA GOLDFIELDS.—The directors have received a cablegram from the Union Bank of Australia that one of their properties, known as the Bamboo Queen, has now been registered in the name of the company.

QUEEN CROSS REEF.—The following cablegram has been received from the head office: "A call has been made of 2d. per share, payable March 21."

ROODEPOORT UNITED MAIN REEF.—Crushing for February 3087 ounces from 5850 tons; cyanide, 1290 ounces; profit for month, £7340.

SALISBURY.—Last month's crushing yielded 1500 ounces.

SUNBURST.—The manager cables that he has let part of the the old Sunburst reef on tribute at 10 per cent., not less than four men to be employed.

SOUTHERN GELDENHUIS.—The following cablegram has been received from the manager at the mines:—"The gold-bearing vein can be traced for a long distance, the crushing is 15 dwts. to the ton. Samples from winze No. 2 assayed 12 dwts. per ton."

STANHOPE.—Last month's crushing yielded 1050 ounces, against 1150 ounces for January.

STRAITS DEVELOPMENT.—The following telegram has been received from the Chairman (Mr. E. Berdoe-Wilkinson), Singapore, under date March 1, having reference to the recent discovery of a gold reef at Passoh:—"Government Analyst reports result of assay 2 ounces 9 dwts. 9 grains gold to ton. I will leave immediately for Passoh."

TAMWORTH GOLD.—Cables received advise that the property is legally transferred, and the company has been working the mine since the 28th ult.

TOLIMA.—The following cablegram has been received from the mines:—"Estimated returns for February £4000; estimated profit for February £700." In the above return silver is valued at 27d. per ounce.

TRANSVAAL GOLD EXPLORATION AND LAND.—The following cablegram has been received from the general manager:—"Ore mined, 1000 tons; ore treated, 1600 tons, yielding 1400 ounces; tailings treated, 1175 tons, yielding 825 ounces; total. 2225 ounces." Estimated value of bullion recovered during February, £5575; working expenses for month, £4060.

UNITED MEXICAN.—The directors have received the following telegram:—"San Cayetano. Gross returns for week ended February 23, $720; expenses, $1110; loss, $390.—El Cubo. Gross returns for week ended February 23, $5180; expenses, $5774; loss, $594."

VAN RYN.—Copy of cablegram received this day:—"Result of 27 days' working Van Ryn, with 50 stamps, from 4200 tons 2051 ounces.—Cyanide works. From 5400 tons 900 ounces. Total yield for the 27 days, 2951 ounces.

WEMMER.—Result of work done during February: 4912 tons, crushed, yielding 3471 ounces of gold, 40 stamps working 27 days, and from cyanide plant 3625 tons treated, yielding 1069 ounces of gold; 139 tons of concentrates caught, assaying 110 dwts. (5 ounces 10 dwts.). The January yield was 5920 ounces.

WENTWORTH EXTENSION.—Report dated January 26: South-east drive from Prospecting shaft No. 2 advanced during the week 25 feet; total length, 152 feet; quartz vein continues from 2 feet to 3 feet wide."

WEST AUSTRALIAN GOLD CONCESSIONS.—The following cable from the company's representative at Cue, Murchison, has been received, giving the following assays from the Lady Kynes Mine, recently purchased by the above company:—"From the ore heap, 80 feet shaft, 6 ounces 2 dwts. per ton; 70 feet shaft, 5 ounces 14 dwts. per ton; incline shaft, 4 ounces 1 dwt. per ton; ore from cutting assays 2 ounces per ton; quartz reef, incline shaft, 2 ounces per ton; 70 feet shaft, 2 ounces 9 dwts. per ton."

WORCESTER EXPLORATION.—Result of last month's crushings yielded 2052 ounces of gold.

"THE MINING MANUAL."—The 1895 edition of Mr. Walter R. Skinner's "Mining Manual" has just made its appearance. In point of magnitude the volume is an advance upon the last issue, a fact which seems to indicate that the company lists have recently received many additions. Notwithstanding the vast amount of labour entailed by the issue of a work of this kind, it is always in this instance performed with the greatest care and exactitude. The information as to the history and present position of the crowds of mines managed in London is as full, as reliable, and as pithily put as ever. According to his usual custom, Mr. Skinner has put the South African mines into a list by themselves, where there is also a directory of the better-known directors of London, and a list of the principal West Australian companies recently floated. Considering the period which must necessarily elapse between the final additions to the volume and its appearance in a completed form, the Manual is wonderfully close up to date. It is needless to add that it will be found of the very greatest use in all City offices—where its reputation as an authoritative compilation has long since been soundly established.

BRITISH GOLD FIELDS (LIMITED).—A meeting of the employees of the British Gold Fields (Limited), near Dolgelly, Merionetshire, was held on Tuesday night, Mr. Dunning, Chairman of the company, who presided, stated that during the half-year just ended 4132 ounces of gold, worth about £15,000 had been produced from 7727 tons of ore crushed. All machinery, including the 40 stamp mill, was driven by water power, effecting a considerable saving on working expenses. The large profits at present derived from the mine would for the present be spent in sinking, driving, and otherwise extending operations. Rapid developments were being made in the mine, and extensive prospecting was in progress over the 5000 acres held by the company. The lode from which the gold was now being produced was discovered about a year ago, and was quite distinct from reefs which had been previously worked. The company at present employed nearly 200 men, and the desire of the directors was to establish an active, prosperous, and lasting industry in the district, which was otherwise totally unproductive. It is contemplated increasing milling power, which will give employment to a far larger number of men.

INSTITUTION OF CIVIL ENGINEERS.

TWO INTERESTING PAPERS.

At the ordinary meeting on Tuesday, Sir Benjamin Baker, K.C.M.G., Vice-President, in the chair, two papers, dealing with the transmission of power by electricity, were read. The first, on

Electric Haulage at Earnock Colliery,

by Mr. Robert Robertson, B.Sc., M.Inst.C.E., opened with an account of the general features of the colliery, and of those of its seams into which electrical haulage had been introduced. The arrangements of the shafts, and the capacities of the cage and coal-hutches were such that the daily output amounted to 1200 tons. Details were given of the lengths and gradients of the main haulage roads in the Ell and Main coal seams, and of the two steam hauling engines operating those roads, on the main and tail, and endless rope systems respectively. Electrical hauling engines had been introduced to drive endless ropes, and to replace horse traction between he main haulage roads and the working faces.

The electrical generating plant comprised a dynamo for supplying power to the electrical hauling engines, capable at a speed of 620 revolutions per minute of an output of 100 ampères at 490 volts. It was driven from a shaft coupled direct to two single-acting Westinghouse engines, having cylinders 13½ inches in diameter, with a length of stroke of 12 inches, and developing together, when running at their normal speed of 350 revolutions per minute, 122 horse-power, with a steam pressure of 50 lbs. per square inch. The electrical circuits were metallic throughout, and the conductors were highly insulated, being sheathed also in iron pipes in the shaft and supported upon insulators in the workings

The two electrical hauling engines, of which the main features were similar, were next described and illustrated. The motor of the engine in the Ell coal seam, when running at a speed of 770 revolutions per minute, developed 35 horse-power with a current of 76 amperes at a pressure of 400 volts. It was geared, through an intermediate shaft, to two pulleys with Hurd clips, each provided with a friction clutch and brake, by which the cables were driven at a speed of 3 miles per hour. The two cables were of stranded steel wire ¾ inch in diameter, and, after passing over balance-wheels placed in re ses near the engines, operated circuits of 2160 yards and 1020 ards in length respectively. The cables were supported at i ervals of about 30 feet along the roads by rollers 4½ inches in di meter; and at the corners were passed over wheels 5 feet in diameter, mounted upon vertical axes below the level of the rails. The gradients were so arranged at the corners that the trains of rucks could there travel without aid from the ropes. In the Main coal seam a cable operated similarly a circuit 1580 yards in length. The cables were driven continuously at a uniform speed, and the coal-hutches were attached to, or detached from, them by a Smallman clip.

The efficiency of the plant as compared with the horse traction, which it had replaced, was then considered. The electrical haulage system in the Ell coal seam was capable of a daily output of 400 tons. The daily output by horse traction had been 180 tons, and to increase this to 400 tons, 30 or 40 horses would have been required—a number which could not have been employed in the available space without confusion. The daily output of the electrical haulage system in the Main coal seam, which was not yet working at its full capacity, was between 150 and 200 tons.

The yearly working expenses of the two systems were compared, upon the results of one and a-half year's working, and were found to be £4130 and £1990 by horse traction and by electrical haulage respectively, showing that an annual saving of £2140 had been effected by the latter. The total cost of the electrical installation had been £3500.

In the second paper—

Water-Power applied by Electricity to Gold-Dredging,

by Mr. Robert Hay, M.Inst.C.E., an account was given of plant which had been erected in New Zealand to utilise water-power for generating electricity to be transmitted to motors operating a dredge in different portions of a distant river. The author pointed out that the transmission of water-power by electricity, in well-watered countries like New Zealand, rendered available deposits of gold in districts in which the scarcity of fuel would not permit of their being worked by other means. The plant described had been constructed for gold-dredging in the River Shotover, the course of which was for the most part in rocky gorges through rugged country, accessible only by tracks cut down the leading spurs and gullies.

The source of the water-power and the method of its application were then described, and illustrated by a longitudinal section of the pipe line. The water was obtained at a creek 1½ mile distant from the dredging ground, and was brought by a race cut in the side of the hill, or, in places where the ground was not suitable, in a timber flume, to a pressure tank at a level of 524 feet above the pipes at the generator house. From this tank to the Pelton wheel the water was carried in rolled steel pipes, constructed in lengths of 19 feet 6 inches, bolted together by wrought-iron flanges rivetted to the pipes.

The prime mover of the generating plant was a 4 foot Pelton reaction water-wheel, upon the buckets of which the water, from a nozzle 1½ inch in diameter, impinged at a pressure of 228 lbs. per square inch. This wheel drove two series-wound dynamos working at a normal speed of 700 revolutions per minute, each developing a current of 40 ampères, at an electro-motive force of 650 volts, or together nearly 70 horse-power. The dynamos were coupled in series, and to guard against damage from abnormal increase of current, a regulator was so arranged as to throw into the circuit an artificial load, in case of the current becoming from any cause 3 ampères greater or less than its normal amount. The conductors, of a length of 2 miles, were of No. 4 S.W.G. bare copper wire, and were supported upon insulators carried by cross-arms upon old 40-lb. rails.

The current was conducted to two motors in the dredge, one for driving a centrifugal pump and the other for operating the buckets, winches, and revolving cylinder. These two machines were duplicates of the dynamos, and were coupled in series, so that when the bucket-motor was switched off, the pump-motor absorbed the surplus power by increasing the speed of the pump, and causing it to throw more water.

The dredge was constructed for the most part of steel, and was capable, when operating at a depth of 20 feet, of an output of 90 cubic yards per hour. The dredgings were delivered through a revolving screen for separating the stones and coarser material, upon baize tables set at an inclination of 1 in 12. Two 10 ampère arc lamps lighted the dredge at night, and were joined in multiple series with the motors, with suitable arrangements for their control. A table of particulars of the efficiencies of various parts of the plant was given. The cost of the installation and the weekly working expenses, £7000 and £35 respectively, were also tabulated.

— Yerrakonda sold the gold produced in January for £117 17s. 8d.

— Mysore Reefs sold the gold produced in January for 247 5s. 5d.

— Oorgaum sold the gold obtained in January for £20,010 13s. 11d.

WOLHUTER.—Crushing for February 1685 ounces from 3290 tons; cyanide, 785 ounces.

YERRAKONDA.—Result obtained during the past month: 142 tons of quartz crushed yielded 52 ounces of retorted gold.

THE MINERAL WEALTH OF SIBERIA.

COAL.

(*Continued from page 244.*)

THE Afoninsk coal field lies near the village of Afonin, and at a distance of 60 versts from the Tomsk Works, on the one hand, and from the Gourievsk and Gavrilovsk on the other. three coal seams have been found, one of which has been destroyed by an underground fire, and all that remains is a beds of ash 1½ sagene thick. The second seam, situated on the hanging wall of the first, is about 1½ sagene thick, consists of a bituminous coal of good quality, and was explored to a small depth in 1851. The third seam is thin, and has not, therefore, been explored.

The Bachatsk coal field is situated to the north-east of the village of Bachatsk at 27 versts distance from the Gourievsk works. This seam is not of uniform thickness throughout, but narrows in some parts and widens in others, and in some places is as much as 25 sagenes thick. In some places it is intersected by bands of schistose clay, which divide it into several separate seams. It has a dip of 65° to 75°, and is sometimes almost vertical. The coal varies greatly in quality in different portions of the seam; in the centre it is dry, non-caking, dense, dull coal, which burns almost without any flame; while towards the roof and floor it is a semi-bituminous, friable, bright, caking coal, burning with a flame. Five coal seams have been discovered to the north of the Bachatsk Coal Mine, on the River Cherta. These seams vary from ½ to 1 sagene in thickness, and have been explored by workings for 3 versts distance. The same seams which appear in such abundance in the southern portion of the basin, outcrop in the north along the Great and Little Bachat rivers. Deposits of coal were discovered along the river Ina as early as 1796. The first of these deposits was found to contain two beds ½ and 1 sagene thick, and the second deposit to consist of one seam 1 sagene thick. In the latter, the surrounding sandstone rock contains portions of trees, and even entire fossil trees, 1 to 2 feet in diameter. The Bachatsk and Kalchouginsk deposits are the only ones which are now under exploitation. The coal is converted into coke and consumed at the Salairsk Works.

The following table gives the yield of these mines during the last five years:—

Year.	The Bachatsk Mine.	The Kolchouginsk Mine.
1887 ..	485,600 ..	322,200
1888 ..	640,900 ..	369,500
1889 ..	530,750 ..	364,700
1890 ..	547,300 ..	504,300
1891 ..	505,650 ..	642,768

During the last three years the following amounts of coke were produced:—

Year.	At the Bachatsk Mine.	At the Kolchouginsk Mine.
1889 ..	273,254 ..	37,456
1890 ..	340,900 ..	71,750
1891 ..	328,766 ..	91,000

In Eastern Siberia, coal fields occur in the Government of Yeniseisk, between Krasnoyarsk and Achinsk, on the one hand; and from Krasnoyarsk, through Kansk to the borders of the Government of Irkutsk on the other hand, and lastly, to the south-west and south of Krasnoyarsk, along the foot of the Alatau and uplands of the Sayansk Mountains. The vast areas comprised by these deposits belong to fresh water formations of the Jurassic system. The vast tracts of these deposits have only been more or less explored along the Siberian postal route and along certain rivers, but even these explorations have already shown the presence of a rather considerable number of spots with outcrops of brown coal. A seam of coal about 5 feet thick has been found near the village of Koubekova at about 20 versts distance from the town of Krasnoyarsk along the River Yenisei. Two coal fields have been recently explored on the middle and lower courses of the River Choulym. In the first of these, the seams of brown coal and combustible schist crop out at the surface in several localities along the River Choulym, and were discovered at 20 versts distance from the village of Kourbatovsk.

In the second, the coal veins crop out directly on the banks of the Rivers Serega and Ourup, and of several springs near the village of Antropova. A seam of brown coal 2 sagenes thick has been discovered at the village of Nazarovsk on the River Adadyna, and a seam 5 feet thick, near the village of Kadat. The formations of this basin have been recognised as belonging to the Tertiary system, and the coal in them is distinguished from that of the Jurassic system, by its greatest density. This Tertiary coal basin deserves the greatest attention of all the coal fields of the Government of Yenisei, both from the quality of its coal the character of its seams, and by its distribution on the navigable portion of the River Choulym. Mount Izykh rises in the Minousinsk region on the right bank of the River Abakan at about 55 versts distance from its junction with the Yenesei, and the thick beds of sandstone forming this mountain contain seams of coal half a sagene thick and more. Another locality in the Yeniseisk Government, which is known to contain bed of coal, lies much further north, namely, on the banks of the Nizhnaya Toungouzka. The presence of coal here was known in the last century. At the beginning of the sixties of the present century, Sidorov, during his expedition for making a detailed exploration of the deposits of graphite previously discovered by him in this locality, also visited the Nizhnaya Toungonzka, where he succeeded in discovering vast beds of coal in several localities, at a distance of 240 to 400 versts, about the mouth of this river. The first of these beds was discovered opposite the mouth of the Malaya Scherbachikha, otherwise known as the Abramova Scherbachikha, which falls into the Nizhnaya Toungouzka, from the right side at about 240 versts from its mouth. The thickness of the coal seam is 3 feet, and it is of good quality.

The second deposit was discovered opposite the mouth of the River Troubikina, which falls into the Nizhnaya Toungouzka from the right side at a distance of about 400 versts from its mouth. The coal seam is 3½ feet thick, and extends for a distance of 1 verst; the coal is of good quality. The third deposit of coal was found at a distance of 40 versts from the mouth of the River Taimour, which falls into the Nizhnaya Toungouzka. This deposit consists of two seams, the lower of which is 1 sagene thick. A fourth deposit of coal was found on the right bank of the Nizhnaya Toungouska at 185 versts from its mouth, and about 5 versts above the mouth of the River Koupalnaya. The coal of these seams frequently approaches anthracite in its quality, and in many places the stratification is greatly distorted by trap rocks, and the coal transformed into graphite.

In the Government of Irkutsk, coal which is for the greater part brown coal, is known in many places in the southern portion of the Government, where fresh water formations of the Jurassic system occur. The coal seams which are 2 feet and more thick at the outcrop, lie among strata of schistose clay and yellow calcareous sandstone. At the present time up to 75 outcrops of coal are known in the southern half of the Government of Irkutsk. Many of these seams deserve attention, either for their thickness, or for the quality of their coal Prospectings for coal have frequently been carried on in the neighbourhood of the village of Ousolie, with a view to furnishing the Irkutsk Salt Works with fuel. In these explorations coal seams up to 3½ feet thick were, amongst others, discovered. But in all probability the greatest importance will be ascribed to the deposits of coal along the River Oka; above the village of Ziminsk, where a whole series of coal seams from 1 foot to 1 sagene thick outcrop on the high right bank of the river. Small exploratory works showed the presence of a store of 200 million pouds of coal in two places. It is a brown coal, with a large percentage of volatile matter, and it gives a powdery coke. After exposure to the atmosphere it, for the greater part, disintegrates into small pieces, and resembles the coal of the Moscow basin in its qualities.

In the Yakutsk region coal-bearing deposits occur along the whole middle course of the Lena and its tributaries, and beyond, up to the lowlands of the Lena. Various modifications of this formation stretch out from the River Bolshaya Botama to the village of Bouloun, which is at a distance of about 100 versts from the mouth of the Lena, or for a distance of 1800 versts down that river. These formations are also observable on the one side of the Lena, on the banks of the River Viluya, beyond the mouth of the Markha, which falls into it for a distance of 600 versts; and on the other side of the Lena, on the banks of the River Aldan, beyond the mouth of the Maya, for a distance of 400 versts, and from the Town of Yakutsk to the north-east within 100 versts of the Verkhoyansk Mountain chain, which also forms over 400 versts. With respect to the geological period of these deposits, they, like those of the Government of Irkutsk, are considered as belonging to the Jurassic system. Coal has been found in the far eastern extremity of Siberia on the shores of the Gizhiginsk and Penzhinsk bays, and in several localities on the western shore of the Peninsula of Kamschatka.

(*To be continued.*)

FORTHCOMING MEETINGS.

**** We shall be obliged if Secretaries or other Officials of Mining Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned —in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Balance sheets, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent*

Name of Company.	Date.	Time.	Place.
United Pioneer Gold	March 11	12 noon.	Winchester Ho.
Montana Mining	March 12	12 noon.	Winchester Ho.
Yerrakonda Mining Co.	March 13	12 noon.	Cannon St. Htl.
White Feather United Gold	March 13	12 noon	Winchester Ho.
Great Gold Zone	March 13	12 noon.	Winchester Ho.
South Crofty	March 14	12 noon.	On the Mine.

Electrical Extraction of Gold and Silver.—At one of the Arizona mines an interesting process has recently been introduced for the electrical extraction of gold and silver that has much promise in it as a means of avoiding the great waste that often takes place, especially in obtaining the finer particles of gold. In this new method the ore is crushed to a certain fineness, depending on the character of the gauge. It is then placed in leaching vats which have false bottoms for filtration, as usual. A solution of cyanide of potassium and other chemicals of determined percentage is run over the pulp and left to stand for a certain number of hours. It is then drained off, and another charge is used in less strength, which is again drained off. The pulp is then washed with clean water, which leaches all the gold and silver, and leaves all the tailings ready for discharge either in cars or to be sluiced away. All filtered solutions and washings from the leaching vats are passed through a precipitating box, which is practically an electrolytic cell, the positive plate of lead and the cathode or negative pole being mercury. Current from a dynamo is used of sufficient pressure to decompose electrolytic liquid, and thus a circulation is kept up. The solution already formed of the double cyanide of gold and silver as it goes along gives up its precious metals under the action of the current, and is gathered on strips of copper connected with the mercury. All the gold and silver need not be extracted at once; and the solution can be used over and over again by re-enforcing it to the desired percentage. It is stated that by this electro-chemical cyanide process a capacity for handling 10,000 tons of pulp per month will run at a cost not exceeding $2 per ton. The bullion recovered in this process is reported to be very fine, while that which is zinc precipitated is only about 700 fine.

Victoria (London) Mining Company (Limited).—The ordinary general meeting of the shareholders of the Victoria (London) Mining Company (Limited), was held yesterday at the offices, 57, Moorgate-street.—Mr. J. R. Macdonnell, who presided, stated, in moving the adoption of the report and accounts, that the meeting had been postponed in the hope that they might be able to give some fuller account of the negotiations which had been going on in connection with the South Clunes amalgamation scheme, by which it was thought the company would be largely benefited. As yet nothing definite could be stated, but they considered there was a good prospect of the amalgamation being carried out. Beyond this there was really nothing for him to say—the report and accounts embodying the fullest information.—Mr. Alfred Cobbett seconded the motion for the adoption of the report and accounts.—Mr. Fraser Rae enquired whether anything was known as to the results of the operations carried on in 1894.—The Chairman replied that nothing had been done during that time except making the calls necessary to keep the establishment going and the property open.—Mr. A. S. Bishop urged that a large reduction should be made in the expenses. He could not help thinking that the best policy would be to wind the company up.—The Chairman said the board were perfectly willing to wind the company up if the shareholders wished it; but whenever that proposal was mooted it had always been rejected by a large majority. The motion was then put and carried unanimously, and the retiring director, Mr. Donaghan, having been re-elected, and the auditors reappointed, the meeting terminated in the usual manner.

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Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

West Australian Gold Fields (Limited).

We have received the following copy of a letter from the secretary, dated Coolgardie, 1st February, 1895:—Mr. Driffield, of the firm of H. J. Saunders and Co., who represent the West Australian Gold Fields (Limited), of London, in the colony, has most unexpectedly arrived here in consequence of an important discovery on Block 50 of the Hampton Plains Estate, which has been secured by the West Australian Gold Fields. The latter company have a prospecting party of 11 men and four camels on the Hampton Plains Estates, and the reported discovery on Block 50 has created a great deal of interest here, as the discoverer is a well-known prospector of good character, who is not given to exaggeration. The prospector has demanded a reward for his discovery, which the London company with great judgment have decided to give him, and a proper agreement between the two parties is being drawn up. While this is being done Mr. Driffield, together with Mr. Frank Backhouse, the mining manager of the West Australian Gold Fields (Limited), have been to examine the White Feather Reward Claim (Limited), which was floated in London by the West Australian Gold Fields. The White Feather Reward claim known here as McAuliffe's, is being developed very rapidly, and the machinery, when erected, will be the envy of all other claimholders. From all accounts it will certainly be the most complete plant which has yet been erected on the Coolgardie gold fields, and Messrs. Martin, of Adelaide, who supplied it, anticipate great credit and many orders in consequence. At the time of writing Mr. Roberts, the engineer, was busy getting things ready for the erection of stamps and winding machinery, the latter of which had arrived. The management have wisely decided to let the sinking of the main shaft on contract, and the contractors have now sunk to a depth of 90 feet, being at the rate of 30 feet per week. As soon as 100 feet is reached it is intended to crosscut to the reef, and open up with the No. 1 shaft and the No. 3 shaft, which will render a large body of ore available for stoping. The No. 1 shaft is down 150 feet, and the reef is 9 feet wide. The No. 2 shaft is down 75 feet, and the No. 3 shaft to 30 feet, and the whole mine is being opened up in the most workmanlike manner of any mine on the field, reflecting great credit on the management. The manager on the Hampton Plains Estate has been buying large numbers of sheep and camels, which were purchased in poor condition at low prices, and these, it is believed, will rapidly double in value when fed on the rich pastoral land of the Hampton Plains Estate, A great deal of jealousy exists here, inasmuch as the Hampton Plains Estate (Limited) owns the only pastoral land of any value in the district, and the Government has decided not to grant any more pastoral leases in consequence of the numerous gold discoveries. The West Australian Gold Fields have secured an extension on the Mount Jackson claim. The property, which is situated in a little known district north of Southern Cross has been highly reported upon by the Government engineers.

The following is dated Albany, January 25, 1895:—All in Albany are in expectation that the Dundas district will come rapidly to the front, and it is probable that Mawson's Reward claim will reap quite a large income from crushing stone from other mines, that being the only claim on the field which has its machinery. It is expected that this machinery will be erected within the next few weeks. There are numerous rich claims in the neighbourhood which the owners cannot develop owing to the want of machinery and working capital, and the manager of Mawson's will have plenty of opportunities to pick up bargains if he makes a stipulation before crushing the ore for claim-holders that he has the option of acquiring an interest in the claim.

Montana Mining Company.

The report of the directors for the half-year ended December 31 last states that the revenue account shows a profit of £24,038, of which £4175 was applied in extinguishing the loss shown in the balance-sheet for the last half-year, and £16,428 in payment of a dividend on January 7, leaving a net balance of £3434 to be carried forward to the next half-year. During the six months under review the mills reduced 38,010 tons of ore, which yielded in bullion bars and concentrates (on assay coinage value) $539,148, equivalent to $14·18 per ton, as against $12·61 per ton in the previous half-year. The actual realised and realisable value of the ore amounted to $414,741, the difference on the coinage value being $124,407, or 2·30 per cent. on the gold, and 57·04 per cent. on the silver produced. The average net realisable value of the ore treated was, therefore, $10·91 (say) £2 5s. 1d. per ton. The proportionate money value of the precious metals contained in the ore was—gold 78·81 and silver 21·19 per cent. Briefly summarising these statements, it will be seen that during the past half year the tonnage of ore treated was 3397 tons in excess of that crushed during the half-year ended June 30, 1894, the total net yield for the same period showing an increase of $56,841. Owing to unforeseen and unexpected delays, the trial of the equity or specific performance suit instituted by the Montana Mining Company against Charles Mayger and the St. Louis Mining and Milling Company did not take place during December as anticipated. The directors are advised by their counsel in Helena that this case will probably be set for trial in April or May, and are assured that every effort will be made to obtain an early decision upon the matters in dispute.

Great Boulder Proprietary Gold Mines.

The following circular has been issued to the shareholders by the secretary:—"I am instructed by the directors to send you extracts from the latest letter, dated January 24, 1895, to hand, from Mr. Zebina Lane, the company's engineer and manager at Coolgardie, and to say that since the date of this letter a cablegram has been received stating that he expected to commence crushing during March.—Extracts: . . . . 'I have been down to procure the pumping plant to pump from the lakes to the mines, and am now returning with all necessary, well on the road. I found nothing could be done until the water was brought in—I mean nothing in the way of crushing—and I found ample water for all purposes in these dry lakes at the very driest period of the year. Since then it has rained, and there is a sheet of water, shallow certainly, but it is fresh and two miles wide; so I hastened all matters on, and have the pump and pipes *en route*.' . . . 'Serious delays took place in the carriage of the plant owing to the drought; the road was practically closed to heavy traffic, and it was not until this last rain that we could get any of the material moved. Now everything is on the move, foundations are well forward, and I anticipate starting your mill as soon as ever the water is in, due notice of which I will cable to you.' . . . . 'Some very good stone is coming out of what is known as the Boulder South Shaft, and it is going down very strongly, with every indication of permanency.' . . . . 'The Lake View property adjoining on the east has had some very good returns, and the stuff crushed is going from 2 ounces to 3 ounces per ton. The Australia parcel crushed yielded the same, and I see no reason why we should not get just as good, and, if so, we have a most profit-paying property when all things as set out are in order and running. I could arrange for a crushing, but it is no use throwing money away carting water, and I want to crush with our own mill, and show a good margin of profit on same. You may rest assured no time is being lost, as all concerned here in Australia are most anxious to give you a good return. . ."

Sun Life Assurance Society.

The report for the year 1894 states that, after payment of half-yearly dividends of 3s. 9d. per share (or 5 per cent. per annum on the paid-up capital) the proprietors' fund was raised from £402,688 to £405,231. The premium income was £359,959; interest, &c., £111,647, which with other receipts, made a gross revenue of £478,635. Payments to policy-holders for claims, &c., amounted to £250,679, and expenses of management (including commission) to £66,271, which, together with other smaller items, made a total outgo of £323,084. The assurance fund was thus increased as a result of the year's operations by £155,551 to £2,837,022. Policies were issued for £1,126,737, of which £38,000 was reassured, the total new premiums being £40,110. This is the largest new business reported by the society in any one year.

Alamillos Company (Limited).

At a meeting of the directors, held on Thursday, it was resolved:—"That a dividend of 6d. per share, free of incometax, be declared payable on Saturday, the 6th April, and that the transfer books be closed for such dividend from the 25th inst. to the 6th April, both days inclusive."

Fortuna Company (Limited).

At a meeting of the directors, held on Thursday, it was resolved:—"That a dividend of 1s. per share, free of income tax, be declared, payable on Saturday, the 6th April, and that the transfer books be closed for such dividend from the 25th inst. to the 6th April, both days inclusive."

Linares Lead Mining Company (Limited).

At a meeting of the directors held on Thursday, it was resolved:—"That a dividend of 4s. 6d. per share, free of incometax, be declared payable on Saturday, April 6, and that the transfer books be closed for such dividend from the 25th inst. to April 6, both days inclusive."

Ferreira Gold Mining Company.

Holders of share warrants to bearer are informed that they will receive payment of the dividend No. 8 (10s. per share), on presentation of coupon No. 1 either at the London office of the company, 120, Bishopsgate-street Within, E.C., or at the Credit Lyonnais, Paris. Coupons must be left four clear days for examination at either of the offices mentioned above, and may be be presented any day between the hours of eleven and two (Saturdays excepted).

— On and after the 11th inst. the offices of BAYLEY'S REWARD CLAIM GOLD MINING COMPANY (LIMITED) and BAYLEY'S REWARD No. 1 SOUTH GOLD MINING COMPANY (LIMITED) will be at Finsbury House, Blomfield-street, London-wall, E.C.

— The certificates of the ROODEPOORT DEEP LEVEL GOLD MINING COMPANY (LIMITED)—new issue—are now ready, in exchange for bankers' receipts, fully paid (exclusive of premium). Application should be made at the offices of the company, No. 8, Old Jewry, London, E.C., between the hours of eleven and two o'clock, excepting on Saturdays.

— The NUNDYDROOG COMPANY (LIMITED) has sold the gold obtained during the month of January last, which realised £11,652 2s. 1d.

— The directors of the GELDENHUIS DEEP (LIMITED) have decided to make a further issue of 15,000 shares, at the price of £7 each, to the existing shareholders, in the proportion of one for every 18 shares held. It is expected that the amount thus to be raised—£105,000—will be sufficient to complete the development and equipment of the mines, 70,000 shares will remain unissued.

— NINE REEFS sold the gold produced in January for £500 6s. 3d.

— CHAMPION REEF sold the gold produced in January for £21,519 2s. 11d.

NEW ISSUES.

EAST NIGEL GOLD MINING COMPANY.

This company has been formed, with a capital of £125,000, in 125,000 shares of £1 each, to acquire and work—as the prospectus has it—"the valuable gold mining properties on the Nigel Reef, known as the Cæsar and Draaikraal blocks, situated in the Heidelberg district, Witwatersrand, South African Republic, and generally to carry on mining and other operations in South Africa. These properties consist of 63 claims (equal to about 90 English acres), situate about 28 miles south-east of Johannesburg. The claims are mostly located on the same farm as the Nigel Gold Mining Company. The reef runs 20° east of north, and 20° west of south, dipping at about 33° west from the horizon, and has exactly the same appearance as the conglomerate vein in the Nigel Mine." Mr. E. Bates Dorsey, Mem.Amer.Soc.C.E., and M.A.S.Mng.E., says of the property:—"In my opinion, as well as that of other experts, it is the same vein that passes through the Nigel property, and has not only the same general characteristics of formation, but where developed it varies in thickness and richness similarly to the Nigel Developments. I am satisfied that the profits per ton to be derived from the ores in your mines will be equal to any other company in the Transvaal." Mr. Junius states: "The reef in every way so far as gone down on bears out the characteristics of the Nigel Reef in the Nigel Mynpacht. The reef at its lowest depth assayed 4 to 11 ounces to the ton. Three shafts have been sunk in the line of the outcrop near the eastern boundary of the property on the Draaikraal tract. Shaft A is 130 feet deep on the incline of the vein. Shaft B is 100 feet in vertical depth, and shaft C is 70 feet vertical depth. The ores taken from these shafts by me assayed an average of 3 ounces 7 dwts. of gold per ton. The vein in each shaft has a westerly dip, proving that it underlies all the company's property."

GOLDEN CROWN (LIMITED).

This company, with a capital of £100,000 in 100,000 shares of £1 each, has, as the prospectus states, "been formed for the purpose of acquiring and working three gold mining leases now known as the Golden Crown group, situate in the celebrated White Feather district of the Coolgardie Gold Fields, Western Australia. The property includes the three leases known as the Golden Crown, Cambria, and Salisbury, numbered respectively 162 and 314 (now consolidated into lease number 645) and 472, comprising a total area of 26 acres, or thereabouts." Mr. John Meiklejohn, late manager of the Golden Crown, in a recent report for the West Australian Exploring and Finance Corporation (Limited), states: 'This property is considered the show mine of the White Feather district, and is one of the gems of the entire Coolgardie Gold Fields.' The manager of the Coolgardie branch of the Union Bank of Australia (Limited), who took over the Golden Crown property on behalf of the West Australian Exploring and Finance corporation (Limited), in a letter to the head office in London, wrote: 'A mine manager has been temporarily appointed to superintend the working of the leases. . . . I am informed that the company's representative is expected on the fields shortly, and shall be pleased when he arrives; meantime the men have been employed sinking a main shaft on the Golden Crown, and I have had the shaft from which the prospectors were getting the gold, battened down, as the stone is too rich to raise unless some responsible person is on the property.' Mr. Charles Kaufman, M.E., who was special instructed to examine and report on the Golden Crown Lease for the West Australian Exploring and Finance Corporation (Limited) in a cable report received by the Corporation, states:—"The vein has been proven up for a length of 550 feet. There are two shafts in the mine. The shaft is on the incline of the vein 60 feet. Have driven levels for a distance of 12 feet—distance from the shaft to another inclined shaft 205 feet. Depth of incline, 45 feet. The level is driven in 22 feet. Winze has been sunk 12 feet. The grade of ore is very good. Open cuts and trial shafts 70 feet by 90 feet by 9 feet deep full of visible free gold; rich quartz against the footwall and against the hanging wall. I estimate the ore in sight at 4000 tons, 3 ounces 10 dwts. to the ton. Measurement of the dump, 560 tons. I estimate the value of the ore at £56,000 in sight, in addition to the alluvial gold found outside the vein formation quite unexpected in extent. Mr. W. Clarke, M.E., of Coolgardie, states of the Cambria:—'I consider the reefs on these properties to be true fissure lodes, and will, with small outlay for battery, &c., pay handsomely at once."

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It is not intended only to negotiate the sale of an entire property but interests in such may be sold or money obtained for development work.
This Company especially solicits the business of making reports or examinations for non-resident mine owners on any of their mines in the United States, and obtaining special information as to their condition and so forth (said reports being confidential).
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LONDON: MARCH 9, 1895.

THE MINERAL WEALTH OF RUSSIA AND SIBERIA.

A COUNTRY whose output of gold came three years ago within easy distance of rivalling the Rand, and now gives every promise of large development in the early future under improved methods, may seem to merit the close attention of English mining engineers. Thus, at first sight, there is something strange in the undoubted ignorance of the London mining community in this connection, and in the possibility of ransacking our company lists without the discovery of a single enterprise located in Russia. No explanation as to this can be found in any long-standing differences as to industrial matters between the two nations. Russia and Britain have been for centuries knit together in a close commercial relationship, but the sharply-defined contrasts between the Governments, habits of thought, and languages have undoubtedly done much to retard the development of particular industries by limiting that knowledge which is the essential precursor of any trade expansion. In the early years of this century the association of both countries was sufficiently intimate to make the CZAR—after a bitter experience of the industrial vulnerability of his own Empire—resolutely stand out in opposition to the policy of generally blockading the Continental ports against English commerce, in which NAPOLEON sought an alternative to the frustrated scheme of an English invasion. Though irregular, the subsequent growth of our trade with the empire has been almost continuous. So exclusively commercial, in fact, was the light in which England—about the fifties—was regarded at St. Petersburg, that one of the causes of the Crimean war was the reputed impossibility of "a nation of shop-keepers" and manufacturers retaining even the faintest scintilla of a martial spirit. To-day there is a sufficiently solid and friendly relationship between both empires to send the enquirer elsewhere for reasons why English capital and talent, applied everywhere else on the surface of the globe, should not have a full scope. For the rest we are not alone in this ostracism. Other countries are debarred by the same barriers, and the only feature of the case differentiating it from others, is the greater perfection of our own mining organisation, and its wider reach and more cosmopolitan character.

The reasons for this separation of the London mining world from the Siberian gold and silver fields are to be found rather in the peculiar local conditions affecting the industry. Nowhere else on the surface of the earth would there appear to be a greater interference of Governmental enactment with individual enterprise. Books could be written about the modifications and amendments introduced by successive bureaucracies in the various industrial laws. From the ukase of PETER THE GREAT, issued in 1719, and entitled the "Mining Privilege," by which the rights of prospecting on Government and private territories were secured to the miner; down to the emancipation of serfs in 1861, and the abolition of obligatory labour, the vicissitudes of the metalliferous industry have been extraordinarily numerous and complicated. Simplicity is not the stamp of the present mining control. Some attempts at a general consolidation of the regulating laws have been made—only, however, partially successful; and under the existing arrangement Finland, the Don Cossacks, and one or two of the districts of Siberia, are excepted from the general control of the Mining Department of the Ministry of State Domains, the general mining authority of the empire. Jealously guarding the industry on the one hand from unaided internal expansion, and on the other from any modification under external influences, the Government seeks to further and complete its dependence upon the central authority Theoretically, the foreigner—provided Jewish blood does not run in his veins—is allowed to own mineral rights and to exploit them; but, practically, in the attempt he would meet with a sufficiency of obstacles put into his way to deter him. In the regulation which requires all persons desirous of working gold deposits or veins to obtain a permissary certificate from the Mining Administration, there is a formidable barrier to free enterprise. Few will require to be told of the possibility of a continued and resultless banging of the head against the walls of an inert bureaucracy. Our acquaintances, indeed, include more than one mining engineer who has had cheering experience of the hindrances arising from Russian official procedure. Miners are no exceptions to the rule which decrees that all subjects of the CZAR should be under close supervision, more especially when they venture for purposes of aggrandisement upon land associated in the juvenile classics with the familiar, if unmusical, name of THOMAS TIDDLER. The publication of a certain budget of mining literature, "upon the suppositions that the acquainting of foreign countries with the position of the Russian mining industries may tend to increase commercial relations with other countries, which do not at present carry on any interchange with the products of the Russian mining industry," is a fairly broad hint that, so far as English engineers are concerned, the gold and silver deposits of Asiatic Russia, are to be, metaphorically speaking, looked at, but not touched.

With this understanding as to our own deprivation permanently before us, an unenvious glance may be cast over the Ural Mountains, to where the largest of the deposits of gold lie. Differences in measures of calculation, no doubt, to a certain extent, nullify statistical comparisons; but the fact remains that some three years ago the production of Russia came nearly abreast of that of the Rand, and the fact, however subject to explanation and modification, is pre-eminently noteworthy. This result, moreover, was in despite of the undoubtedly crude modes of working prevailing everywhere in the Russian Empire. Conservative—almost retardist—in other things, that nation could hardly make haste to adopt the improvements widely accepted elsewhere, more especially where their ability to do so depends upon an Imperial ukase. Since then, no doubt, the productions of both Siberia and the Rand have progressed—in the former case gradually, and the latter, under the introduction of vastly improved processes of extraction, by leaps. On the whole then, the disparity between the Empire and the Republic is now probably greater than it was three years ago. Still it would not be wise to argue forward from this that the gold field in which we ourselves are so closely concerned, would continue permanently in the ascendant. The rapidly-proceeding construction of the Siberian railway; the recent permissive legislation as to the introduction of the new processes of ore treatment; the slow, gradual growth towards a more liberal and enlightened polity—these are all causes working together for the ultimate benefit of the industry. Under existing circumstances, there are many hampering regulations in force, but it might be hoped that these, one by one, would give way in the near future to a freer scope of action, and then—if the time ever comes—will be seen the full results of this enormously rich, but comparatively unknown field. To insist upon the vast extent and immense value of the Uralian and Siberian metalliferous deposits would be a useless office. Gold and silver are found in a rich profusion from end to end of the country. A glance at the mineralogical map before us shows that there are crowds of gold mines lying in the belt between the Sea of Japan and the lower Urals. Besides those already in process of working there are, according to some authenticated accounts, large numbers of mines neglected under the present system, but

which the most modern appliances and processes would make handsomely remunerative. No mining man, in judging the comparison we have ventured to make, can afford to forget that while the imposing output of the Rand is directly due to the use of the most perfected machinery, Siberia has yet to feel the full force of what the most recent of the nineteeth century appliances can do for her. The balance of probabilities is strongly is favour of the Rand maintaining a good lead, but in any event a good second place must be allowed to Russia, even under its present manifold disadvantages. Owing to the distant demeanour maintained by the Imperial authorities, a Siberian boom can hardly be counted among the possibilities, but, at the same time, English engineers may profitably and with complacency play the part of disinterested lookers-on, sure that they have nothing to lose, and by no means certain that, by way of illustration and example, they have nothing to gain.

MADE IN GERMANY.

IT is now five years since the last Select Committee of the House reported on the working of the Merchandise Marks Act of 1887. The Act had then only been three years in operation, and it would seem high time that another Parliamentary Committee should take evidence and report on the operation of the Act. The more so, that the last Committee which reported, evidently, from their report, mistook the object and intention of the Act. There was at the time, as will be recollected, a spasmodic outburst in favour of what is called Fair Trade, and there can be no doubt that affected the colour of the report, which looked upon the Act as one passed for the object of protecting interests. It is now generally becoming recognised, as was made very evident at Wednesday's meeting, that the whole true scope and intention of the Act is to prevent false marking, and to put a stop to the perpetration of such frauds as Sheffield complained of, by which foreign goods marked with the name of an English trader, or name of an English place, were introduced into this country, and thence introduced into the home or foreign market as of English manufacture. To put a stop to this iniquitous undermining of the reputation of English manufacture, the Act required that such marks should be qualified and explained by the addition of the name of the country where the goods were made. Before the Act had been long in operation it was felt that a free advertisement had been given to foreign goods, under which the foreigner was prospering and the English trade languishing. The Committee of 1890 was then appointed, and before them it was urged that "made abroad" should be substituted for the name of the country of origin, thus avoiding the advertisement of foreign makers, and preventing the disclosure of the merchant's secret of where the goods were made. The Committee, however, reported against this suggestion, on the ground that it would be against the interest of individual Continental States, which would thus collectively be classified under the words, "made abroad." It is not a little remarkable that these foreign states met Great Britain in conference the very next year in Madrid, and an arrangement was concluded, known as the Madrid International Arrangement of 1891, in which it was agreed that all falsely-marked goods should be seized on importation into the signatories' States, and discarded the idea of allowing them to be admitted on qualification. That the Madrid Conference was right in the value it placed on a qualification—such as "Made in Germany"—of a mis-statement as to the maker or origin of the goods, is shown by the well-known fact that hardware goods are made in Germany and stamped with no other words than "Made in Germany" in English words and characters, and find a ready market in Germany among people who do not know English, as of English manufacture. The fact that England had, as appears from a recent Parliamentary Report, practically at the passing of the Merchandise Marks Act the entire iron and steel trade with India; but that now Belgium and Germany have half the iron and the larger portion of the steel, points to the conclusion that the effect of the Merchandise Marks Act, which is rigidly enforced in India is, by means of the free advertisement we are giving to foreign manufacture, to transfer our commerce and our shipping, as well as the placing orders for manufactured goods, to foreign countries, and helps to bring about some of the depression in trade. The report to which we have alluded says:—"An examination of the returns tend to support the conclusion that, in respect of British manufactures, Continental competition is gradually making way, and in respect to Continental goods, of which the United Kingdom was the depôt for shipment, the trade with India is being conducted direct in an increasing degree."

NOTES AND COMMENTS.

APROPOS of our correspondent's letter last week on "South Australia as a Coming Field," the mails this week bring us the opinion of Mr. J. V. Parkes, Inspector of Mines and Warden of Gold Fields. This gentleman has been interviewed by a representative of the *Adelaide Observer*, and to him stated his conviction that the prospects are brighter than ever, a fact which our own special correspondent out there has repeatedly emphasised. He observed that there are a large number of prospectors, and that they are increasing every week; but that there is an immense area of unprospected country which is well worth prospecting. Questioned as to the reason why there are not more prospectors, he supposes the reason to be, in the first place, because the alluvial fields have never proved so rich as those of Ballarat and Bendigo, where the fortunate digger might in a week, or even with one lucky stroke of the pick, make a fortune; and in the second place because capitalists are not always forthcoming to equip prospectors who would go out and develop promising reefs. "The fact of the matter is," he went on to say, "the mining spirit has never pervaded people in South Australia as it has, and does, residents in the large mining centres of Victoria. . . . Thousands of South Australians have put money into gold mining, expecting to reap dividends in a few months after a few hundreds of pounds have been spent, whereas in Victoria it is no uncommon thing for a company to spend £40,000 or £50,000 before a single dividend is paid." If this be so, local people should not complain, as they are apt to do, that British capitalists have ceased to display active interest in the country, which its mineral wealth does not warrant, for it is natural that their own apathy should not inspire us with enthusiasm.

INTERROGATED as to the amount of work done during the past year, Mr. Parkes answered that a great deal had been done especially in the North-east and in the Blumberg and Woodside districts. Of the North-eastern country he has a very high opinion. "It has scarcely been touched," he says, "although work has been and is being done at Waukaringa, Teetulpa, Wadnaminga, Taltabooka, Nillinghoo. Angipena, Ulooloo, north of the Peake, Yudnamutana, Mount North-West, and other places." The greatest development has taken place at Waukaringa, but despite all the work done by the New Alma and Victoria and the Alma Extended, he does not consider that the Alma reef has been properly tested yet. He is sure it would pay the Alma people to put down a vertical shaft. The Ajax line of reef on the same field should also be tested properly. The introduction of chemical treatment in the shape of cyanide has proved that the reefs at Wadnaminga may be payably worked, and there should be as many men orking at Taltabooka as at Wadnaminga, while beyond Taltabooka there are excellent auriferous prospects at Copperlinka, and indeed, all over the North-east. The Nillinghoo field, for instance, is very promising, and 100 tons of stone are now being bagged to be sent down to the Mount Torrens Cyanide Works. Some of the stone from the field is very rich; in fact, 19 lbs. of stone from a shoot yielded 2 ounces 8 dwts. of gold. In the Blumberg district, too, "many promising shows are being worked, and there are many more awaiting the enterprise of the capitalist and the pick of the miner." Altogether, therefore, Mr. Parkes has an enthusiastic opinion of the mineral wealth of South Australia, an opinion which is held by reliable experts who have visited the country. What is needed is capital. Certainly there is no evidence of this forthcoming at present, but it will surely flow into the country some day, though that day may be far distant.

THE report of the directors of the Montana Mining Company is not so bulky as in previous years; but, nevertheless, it makes up for the loss of quantity by its quality. It is quite possible that the information contained in it will not have been anticipated by the most sanguine shareholders, for in comparison with the position of affairs at this time last year, a profit now of £24,038 10s. 7d. is to be greatly wondered at. It speaks volumes, and foreshadows possibilities enough to raise the hopes of the most despondent. For our part, we are delighted to see this turning of the corner—this return to old times—for the Montana Company deserves all the success it is possible to achieve. Evils have arisen where least expected—and certainly where least deserved—but these have now been successfully overcome, and the future stretches out clear and straight. Of this large profit £4175 13s. 3d. has been applied in extinguishing the loss shown in the balance-sheet for the last half-year, and £16,428 4s. in payment of a dividend on January 7th, leaving a net balance of £3434 13s. 4d. to be carried forward to the next half-year. During the past half-year the tonnage of ore treated was 3397 tons in excess of that crushed during the half-year ending June 30th, 1894, the total net yield for the same period showing an increase of $56,841. The usual half-yearly report of Mr. Bayliss is absent, but the omission is satisfactorily explained. We are promised that he will be present at next Tuesday's meeting, when he will explain in detail the operations of the past half-year, and the present and future prospects. We shall look forward to a successful and enthusiastic meeting.

THE shareholders in the Lisbon-Berlyn Company have not yet got to the end of their difficulties and disagreements. No sooner has a clean sweep been made of the old management, and the heavy work of reorganisation commenced, than it is said suddenly to be discovered that the whole of the business transacted at several recent meetings is, as it is ominously phrased, *ultra vires*. Beyond this, one of the shareholders has latterly complacently joined the company with himself in an action against the directors. A result of these vicissitudes was one of the stormy meetings, to which shareholders in the Lisbon-Berlyn Company are by this time wholly accustomed. With the exception of one shareholder, who was unfortunate enough to achieve a certain measure of unpopularity, the whole meeting seemed to be moved by a common impulse, and under the directions of Mr. Holland, who is a very able Chairman, passed resolutions confirming the recent election of directors, and authorising an application to be made for the striking out of the company's name as a party to the action. What the direct effect of this step will be may be questioned, although there may be several legal theories on the point. It only remains to await the issue of these complications.

THE position of the Mount Shamrock Gold Mining Company is not an enviable one. The directors have just issued their report and balance-sheet, but these are unaudited, for the simple and significant reason that they have not the wherewithal to remunerate the auditors. This is not an old company, for it was formed as recently as 1887. Since then its career has not been one to excite enthusiasm. There is evidence certainly that something has been attempted, but nothing won, a kind of energy from which, unfortunately, a great number of mining company's suffer. In their report the directors lament that their appeal in July last for further funds was most disappointing, applications for only 1883 preference shares having been received. Therefore, as the proceeds of these shares would have amounted to £235 only, the directors decided not to go to allotment, and, accordingly, the money paid on application was returned. On January 3rd last the mortgagee of the mine and plant entered into possession, and instituted an action of foreclosure in the Colonial courts and he has since then, we are told, continued to work the mine at his own expense, "with the result that payable stone has been discovered." If this be so, it is extraordinary, and shareholders will want to know why it has not been discovered before: In spite of this, however, the mortgagee desires to be a philanthropist, for he "has intimated that he is willing to give the shareholders another chance to recover their property, and to reap the benefit of the money which has been expended in exploratory work during the last three years." It is estimated that £4009 will be required to satisfy his claims, and for his costs and expenses; and to enable the company to resume working the mine, "a sum of about £3000 at least will be required—say, £7000 in all." The directors, therefore, invite the shareholders to subscribe for the 70,000 preference shares at 2s. 6d. It is not much, certainly, but we are not at all hopeful that the directors will ever get it.

THERE seemed to be a general consensus of opinion at the conference, held on Wednesday last at the London Chamber of Commerce, on the subject of Merchandise Marks, that the administration of the Act by the Customs had been praiseworthy to a degree, and that the leading officials there have appeared anxious to assist traders in advice with reference to goods where marks infringe the provisions of the Acts; although, at the same time, some feeling was evinced with regard to certain provisions of the Act which appear to be unnecessarily restrictive of trade, and in no way demanded for the purpose of preventing false marking. Colonel Howard Vincent, who opened the discussion in the interest of Sheffield manufacturers, and propounded his Bill now before Parliament, which proposes (as appears from the report of the meeting which appears in our columns to-day) that all imported goods should be marked with the name of the country of origin before they are admitted through the Customs, received very cold encouragement; he, however, seemed not to have expected much, for he had made it a condition of his appearance at the Chamber that no resolution should be put or carried expressing the views of those present. This was evidently a matter of considerable regret to many present, and it was suggested that another meeting of the whole Chamber should be held at a larger hall, such as the Cannon-street Hotel, when the opinions of a numerously-attended meeting might be obtained. There seems to be little object in this, unless the meeting was thrown open to all comers, for we understand that all the 4000 members of the Chamber had been summoned to attend the conference of last Wednesday.

THE difference between working a mine situated in England, and one lying within the area of a foreign Government, is well illustrated by the misfortunes afflicting the Marbella Iron Ore Company. An accidental fall of the rock occured some time ago in the mine, and resulted in the death of one of the employees. Such accidents are deplorable enough, and every wise Government will enforce severe precautions to decrease the risk attending such ventures. In this instance, however, the Spanish Government, in whose country the mines are situated, have transcended the bounds of common sense. An investigation was made into the circumstances of the fatality, and, with the result, the authorities have actually ordered the mines to be closed, prohibiting even such works as are necessary to keep the mine in a workable condition. Representations have been made both directly and through the Foreign Office, but the Spanish Government remain obdurate, and the absurd state of affairs is still in force. Meanwhile, the position of the Marbella Company may easily be imagined. Mining operations being completely at a standstill, the whole machinery of the company is standing idle and useless. Here is an instance in which the interposition of the Foreign Office might be usefully made, and we hope that it will be effectual. Anything more unreasonable than the action of the Spanish Government it would be hard to conceive. As well might one of the main thoroughfares of the City be built up because someone happened to be run over.

THE Board of Trade returns for the month of February, issued on Thursday, are very unfavourable. Under almost every head there is a more or less marked decrease as compared with the corresponding month last year. Imports have fallen off more than 17 per cent., and exports 9·6 per cent. The only apparent explanation of this great diminution is furnished by the severity of the weather during the past month, which greatly impeded shipping. The imports show a decline of £5,849,596, as compared with an increase in February last year of £4,225,000. Metals show a reduction of £226,000, though quicksilver shows an increase of £67,000 in value. The exports for February amounted to £15,968,395—a decrease of £1,711,054; the figures for the same month last year showed an increase of £586,140. The returns of iron and steel exports are again on the decline; the only items under this head showing increases are wire and tin-plates. The total export is 157,830 tons, against 173,861 tons in the same month last year, and the value is given as £1,294,758, compared with £1,346,379, or a fall of 3½ per cent. In comparison with the returns for February, 1894, the value of exports in pig and puddled iron for last month shows a decline of 31 per cent.; bar and angle has fallen 16 per cent., railroad 17 per cent., telegraphic wire 92 per

cent., cast and wrought iron 5 per cent., hoops and sheets 50 per cent., old iron 27 per cent., unwrought steel 16 per cent., galvanised sheets 12 per cent., and unwrought tin 44 per cent. The increase in wire amounts to 6 per cent., and in tin-plates to 30 per cent.

Taking the returns of the first two months of the year together, we find a rise of 13 per cent. in wire, 8 per cent. in cast and wrought iron, and 6 per cent. in tin-plates. On the other hand, a decline is apparent of 6 per cent. in pig and puddled, 21 per cent. in bar and angle, 13 per cent. in railroad, 71 per cent. in telegraphic wire, 49 per cent. in hoops and sheets, 15 per cent. in old iron, 20 per cent. in unwrought steel, 16 per cent. in galvanised sheets, and 23 per cent. in unwrought tin. Copper and brass exhibit in the aggregate a substantial decrease. Unwrought copper, shows a rise of 19 per cent. for the month, and 43 per cent. for the two months; but wrought copper has fallen 42 per cent. and 19 per cent. for these periods, brass 6 per cent. and 5 per cent., and mixed or yellow metal sheathing 56 per cent. and 42 per cent. Among the miscellaneous articles alkali has fallen £27,312; chemicals, £83,000; steam engines, £50,494; coals, £421,687; and salt, £7,035. The re-exports of foreign and colonial merchandise show a decrease of £643,896 on a total of £4,407,8?4.

Statistics are now to hand from which we are able to form some idea of the make of material at the Bessemer steel works in America. The intelligence is that the output of ingots aggregated 3,579,101 gross tons, of which 1,667,454 tons were cast in the first half of the year, and 1,911,647 tons in the latter half. Compared with the figures for 1893 the total make is an advance of 363,415 tons, or 11 per cent. The exact figures for 1893 were 3,215,686 gross tons. Last year's statistics include the production of the few Clapp-Griffiths and the Robert-Bessemer plants erected in America, besides the production of the Bessemer works proper. When we come to steel rails we find that the output of all descriptions under this head last year was 1,014,034 gross tons, of which 899,120 tons are specified as being rolled from native-made ingots, and 114,914 tons from purchased blooms. The total rail output of 1893 was 1,129,400 gross tons, being 115,366 tons, or 10 per cent. in advance of last year, so that to this extent the American rail output has declined. These statistics are not surprising, since it has been well known for a long time past that the rail mills of America, and, indeed, the steel mills generally, were very badly off for work, and early in the year it was announced that the output of railroad material proper had not exceeded 725,000 metric tons.

The scheme for a reduction in the make of tin-plates in the Principality of Wales has proceeded so far since our last, that what is termed a Board of Control, consisting of both makers' and workmen's representatives, has been formed. The object of this body is to carry out the restriction project. It has been resolved by the board: (1) That the production of plates in the tin-plate trade be assimilated to the demand; (2) that each individual works reduce make by one-third, the output to be based on 576 boxes per mill per week. As we pointed out last week, however, the scheme is not by any means supported by the majority of the trade, and the decision of the makers favouring the new board cannot be regarded as representative of the industry as a whole. A very large section of the makers is of opinion that the raising of prices such as must certainly result from any general reduction in make is a most certain way of encouraging American competition and making matters in Wales worse than they already are. These owners argue that a reduction in coke-plates to 9s. a box would be an equally effective way of discouraging the competition. This, they state, could be done, and a large portion of the trade permanently kept in the country if, instead of resorting to restriction, men and masters were to arrive at an agreement of mutual concession,

GOLD MINING IN WALES.

Next week, or, more probably, the week following, we shall publish an article on the present position of the gold mining industry in Wales, from the pen of a mining expert whom we have commissioned to examine the mines.

THE MINING MARKET.

Friday Evening.

A week of activity and good business.—Kaffirs strong.—West Australians quiet.—Miscellaneous irregular with Queensland shares in greater demand.

DEALERS in the Mining Market have had little to complain of in respect of the week just concluded. There has been a steady stream of business without any sensational fluctuations. Home investment buying and Continental orders have continued on a satisfactory scale, and prices in many cases are appreciably better. None of the traditional week-end dulness characterised the market on Saturday, which developed wonderful strength in the South African section. Mr. Barnato's visit to Paris was expected to do great things, and animated dealings continued for several hours in the "Street." The Westralian market was in a state of suspended animation, owing in a large degree to the soreness of the dealers at having come off second-best in the "Australia" rig. Diamond shares were good, and half a dozen specialities in the Miscellaneous market attracted attention. On Monday a fresh batch of buying orders from the Continent brought about some notable gains in the Kaffir section, but profit-taking caused reactions, and, although the market hardened up in the "Street," the last prices were not always the best. There was a special move in Chartered, which had been quiet for some time. Diamond shares were lower, whilst increased activity and a better tone were shown in Miscellaneous shares Tuesday saw some irregularity in Kaffirs, Barnato stocks being good on the Paris visit, whilst East Rands reacted perceptibly. Chartered eased off a shade, but Diamonds were harder. There was very little life in the Westralian group, but Charters Towers shares exhibited a very healthy tone. Indians were firm, with a few small rises. On Wednesday the shadow of the coming settlement temporarily asserted itself, and a natural reaction, brought about by profit-taking, slightly reduced the general level, though losses in Kaffirs nowhere exceeded ¼. De Beers receded, whilst Jagers were strong. There was a better tone in Westralians, with one or two conspicuous gains. Charters Towers shares were in demand, whilst Indians, on the whole, were fractionally easier. Thursday brought about a rally and recovery of confidence in South Africans, which, in view of the proximity of the settlement, were remarkably firm. There were strong advances in two or three specialities, such as Knight's, Durbans, and Geldenhuis Deep, whilst the declines were inconsiderable. Matters were more lively in the Westralian market, but in the Miscellaneous, dealers evinced a disposition to let things slide, and there was little business in Indians. To-day the volume of business has been reduced in all departments, but making allowance for the nearness of the account, the undertone is remarkably healthy and good ground appears to exist for the anticipation that the Kaffir boom will take a fresh start after the settlement.

British Mines.

There has not been much improvement in the Cornish share market during the past week. A good many Dolcoaths have changed hands from 35 to 33½, at about which they close. East Pools and Tincrofts in fair demand, but very little doing in other shares. At West Frances meeting, on Thursday, a call of 7s. per share was made.—Risen: None.—Fallen: Carn Brea, 7s. 6d.; Dolcoath, 20s.; Tincroft, 10s.; and Wheal Grenville, 20s.

South African Shares.

The leading feature of Saturday's market was a strong rise in East Rands, which opening at 56s., went straight away to £3, ex the right to apply for New Comet shares at 25s. to the extent of 1-10th of the holding. New Comets being worth over 2½, the bonus on East Rands is about 2s. 6d. a share. There were evidently some big selling limits for East Rand at 60s., for on Monday and Tuesday the price sagged away until 57s. 6d. was reached. The news that the St. Angelo Company is to be reconstructed, and that shares will be offered to East Rand proprietors at par, with other favourable prospects caused a rally later in the week, and the price to-night, 59s. 6d., is encouraging to those who look for materially higher values in the near future. Randfontein attracted much attention during the week, opening at 25s. 6d., moving to 27s. 6d. in the street on Monday, and continuing in favour throughout Tuesday on the statement that a French Syndicate has bought a small portion of the property for £600,000 in cash. Paris orders took the price to 28s. 3d. on Wednesday, and to-night the quotation is 28s. Rand Mines, opening at 25, improved on Monday night to 26, and, after fluctuations within a small compass, were a shade harder than that price up till noon to-day when a fresh spurt took them to 26¾. City and Suburban topped 20 on Tuesday, and, putting on a small fraction on the following day, shed it again on realisations. Monday saw Crown Reef at 10⅜, Simmers at 12¾, Ferreira at 18½, and Wemmers at 8 11/16, all of which, although fairly well maintained, have been about the best prices of the week. Modderfontein had a big rise on Saturday, jumping from 10⅝ to 11¾, and after some slight fluctuation closes just under 12. Twelve months ago these shares were selling at 6s. Robinson has gone steadily up fraction by fraction from 8½ to 9 1/16. Orions were in demand at 4⅜ on Monday, but have since eased off to 4 1/16, and Minervas, then quoted at 2¼, are no better than 2. A biggish business has been done in the Barnato stocks without having any very marked effect on prices. Paris has absorbed a lot of Glencairns round 4⅜, and Primroses at 6¼ upwards, but there has apparently been a proportionate supply forthcoming. Buffelsdoorn were bid up to 4 to-day. The Deep Level properties have held their own fairly well. Gold Fields Deep at 4⅜ are lower on the week, and the gain on Consolidated at 4⅜ is trifling. Champ d'Or Deep, being manipulated by Paris, rose to 24s. 6d. on Thursday. Jumpers are easier, but respectable gains are shown by Knight's at 4¼; Langlaagte at 5 3/16; and Durbans at 7⅛, the move in this trio taking place on Thursday. Block B stock, for some time neglected, have run up from 16s. 6d. to 21s. Luipaard's Vlei rallied from 13s. 6d. to 15s. 6d., but eased off a bit again. Shebas have been quiet round 28s. Spitzkops, which touched 15s. 9d. in anticipation of the meeting on Tuesday, have sagged away to 13s. 9d. on sales in a limited market by weak "bulls," who were disappointed with the Chairman's colourless speech. Harmony Preference are flat, and Lionsdale have given way, whilst Lisbons have been pressed for sale by the anti-director clique.

Chartered, which had been dull for two or three weeks, took a spurt on Monday, topping 44s. in the "Street," and opening at 44s. 9d. on the following morning. Realisations checked the upward movement, and the last price is 43s. 6d. Oceanas have been quiet, and the lower priced shares, such as African Concessions and its satellites, have exhibited a tendency to give way, but North Shebas have been kept steady by the clique. Balkis Eersteling have continued flat, and are lower on the week at 3s. Pardy's Mozambique rose to 3⅜ on Monday, but on Thursday gave way to 2¾ on realisations, and to-day fell further to 2⅝. Diamond shares have been active. Jagers were no better than 20½ on Monday on the publication of the February returns showing a profit of £15,987, but on Wednesday they became buoyant at 20¾ on rumours of a big dividend and bonus, and on Thursday, without much business being done, they had a remarkable spurt, which carried them 1⅝ up to 22⅜. To-day they have reacted to 21⅞, whilst De Beers have put on ¼ at 21⅝, making a gain of ⅝ on the week.

Risen: African Coal, 6d.; African Consolidated, 6d.; Aurora, 2s.; Block B, 4s. 6d.; Buffelsdoorn, 2s. 6d.; Champ d'Or, 7s. 6d.; Champ d'Or Deep, 4s. 6d.; Chartered, 1s.; Consolidated Deep, 5s.; City and Suburban, 12s. 6d.; Clewer, 2s. 6d.; Croesus Deep, 7s. 6d.; Crown, 10s.; Durban, 10s.; Eastleigh, 2s. 6d.; East Rand, 3s. 6d.; Ferreira, 7s. 6d.; Geldenhuis Deep, 15s.; George and May, 2s. 6d.; Ginsberg, 3s. 6d.; Gold Fields of Mashonaland, 1s. 3d.; Guy Fawkes, 1s.; Johannesburg Investment, 1s. 3d.; Johannesburg Pioneer, 2s. 6d.; Jubilee, 10s.; Klerksdorp, 1s.; Langlaagte, 12s. 6d.; Luipaards Vlei, 6d.; Main Reef, 6d.; May Consolidated, 1s. 3d.; Metropolitan, 1s. 3d.; New Croesus, 2s. 6d.; New Jagers, 35s.; New Primrose, 2s. 6d.; Nigel Deep, 2s. 6d.; Orange Free State, 20s.; Paarl, 2s. 6d.; Pigg's Peak, 1s. 6d.; Randfontein, 5s.; Rand Mines, 35s.; Read's Drift, 1s. 3d.; Robinson, 10s.; Simmer, 7s. 6d.; South-West Randfontein, 1s. 3d.; Steyne, 3s. 9d.; St. Augustine, 6d.; Transvaal Exploration, 6s. 3d.; Transvaal Land, 6d.; Village, 5s.; Witwatersrand (Knight's), 10s.; Wolhuter, 2s. 6d.; Zambesia, 5s.—Fallen: Abercorn, 3d.; African Gold Concessions, 2s. 6d.; African Recovery, 1s. 3d.; Alexandra Estate, 6d.; Balkis Eersterling, 9d.; Balkis Land, 6d.; Consolidated Gold Fields Deferred, 1s. 3d.; Frank Johnson, 6d.; Geldenhuis Estate, 7s. 6d.; Geldenhuis Main, 4s.; Geldenhuis Southern, 1s; Gwelo, 3d.; Gold Fields Deep, 3s. 9d.; Harmony, 1s. 6d.; Heriot, 5s.; Johannesburg Estate, 1s.; ditto Water, 1s.; Jumpers, 5s.; Lisbon, 1s.; Masi Kessi, 2s. 6d.; Meyer and Charlton, 2s. 6d.; Minerva, 3s. 9d.; Moodies, 6d.; Mozambique, 1s.; New Rand, 1s. 3d.; Oceana, 2s. 6d.; Orion, 2s. 6d.; Pardy, 15s.; Princess, 1s. 3d.; Rand Rhodesia, 5s.; Roodepoort Deep, 7s. 6d.; Sheba, 1s. 6d.; Spes Bona, 1s. 6d.; Spitzkop, 1s.; South Reef, 1s. 6d.

Miscellaneous Shares.

The West Australian department has found its chief excitement in discussing the rig in Australia (Limited), by which the wirepullers are reported to have made a big pile. An agitation is afoot for contesting the legality of the deal, with a view to the cancelment of bargains, but it is hardly probable that anything will come of this. The same howl was heard from the "bears" of Warners and Mysore-Harnhalli, but there was then no redress in the law for the sufferers. Dealings have been suspended in "Australia" (Limited), though the premium is quoted nominally at £3. The shares of the promoting company—the Associated Gold Mines—had a smart flop on Wednesday to ⅛ discount, rallied on Thursday to nearly par, and close at a small discount. The attitude in this market is one of expectation pending results from the mines. Great Boulders are expected to be amongst the first to make returns, and at 12s. 6d. the fully-paid shares look cheap. Londonderrys have eased off to ⅛ premium. Coolgardie (Sherlaw's) ran up from 12s. to 19s. 6d. by Thursday, and have since reacted to 16s. 6d.

The increased attention devoted to Charters Towers shares has resulted in gains in Carrington, which spurted to 8s. on the prospect of striking the shoot of the Victoria Reef, Bonnie Dundee at 16s. 6d. and Brilliants, the latter being about 1s. 6d. up at 17s. 6d. The excellent return of 3602 ounces from practically the same number of tons, should draw attention to the value of these shares, which are at the nominal value of £2. Day Dawn Blocks at 11s. 9d. are said to be a good lock-up. Broken Hill Proprietary are slightly harder at 36s. 6d., though during the week the official broker had to give up to 39s. for a parcel. A scheme is afoot for the reconstruction of the old Argentella, to be rechristened New Charters Towers. During the week some active dealings have taken place at prices ranging from 2s. to 4s. 6d. They are 10s. shares with 9s. paid. The Argentella property was sold last year for the benefit of the debentureholders. Montanas had a smart run up on Monday to 13s. 9d., but failed to maintain the price, reacting to 12s. 6d. St. Augustines have fluctuated between 7s. and 9s. The Wentworth issues are practically without change. There has been very little doing in Indians.

Risen:—(Charters Towers) Bonnie Dundee, 1s.; Brilliant, 1s. 6d.; Brilliant St. George, 6d.; Carrington, 2s. 9d.; Day Dawn Block, 6d.; Golden Gate (C. T.), 3d.; New Queen, 3d.; Argentine Concession, 3d.; Colon, 3d.; Cumberland, 3d.; Frontino, 1s. 3d.; Jay Hawk, 6d.; Kaboonga, 6d.; Mosman, 6d.; Mysore-Harnhalli, 3d.; Ooregum, 1s. 3d.; Ooregum Preferred, 2s. 6d.; Rio Tinto, 2s. 6d.; Victory, 6d.; Victory and Altamira, 6d.; Waihi, 2s. 6d.; Wentworth Priority, 6d.—Fallen: Alaska, 5s.; Australasian, 3d.; British Broken Hill, 6d.; Cape, 1s. 3d.; Colombian, 6d.; Dickens-Custer, 3d.; Don Pedro, 6d.; Eaglehawk, 3d.; Elkhorn, 1s.; Golden Feather, 6d.; Hauraki, 3d.; Macate, 3d.; Mysore, 1s. 3d.; Mysore Reef, 1s.; Mysore Wynaad, 1s.; Poorman, 3d.; St. John del Rey, 6d.; Yerrakonda, 3d.

West Australian.

Risen: Austin, 2s. 6d.; Coolgardie (Sherlaw), 4s 6d.; Golconda, 1s. 3d.; London and Western Australia, 2s. 6d.; Zapopan, 3d.—Fallen: Associated Gold Mines, 3s. 9d.; Bayley's, 6d.; Blackett's, 1s. 3d.; Coolgardie, 4½d.; Consolidated Gold Mines, 1s. 3d.; Great Boulder, 6d.; Hampton Lands, 2s. 6d.; Hampton Plains, 2s. 6d.; Kensilla, 1s. 3d.; Lindsay, 1s. 3d.; Londonderry, 2s. 6d.; Mawson's, 1s. 3d.; West Australian Gold Fields, 1s. 3d.; West Australian Mining, 6d.

STOCK EXCHANGE SETTLING DAYS.

Settling Days on the Stock Exchange are as follow:—

CONSOLS, Wednesday, April 3, 1895.

STOCKS AND SHARES.

Ticket Days.	MARCH.	Account Days.
Wednesday, Mar. 13		Thursday, Mar. 14
Wednesday, Mar. 27		Thursday, Mar. 28

FURNACES FOR ROASTING GOLD-BEARING ORES.

By Mr. C. G. WARNFORD LOCK.

THE above was the title of a paper read before the Society of Arts on Wednesday in last week, by Mr. C. G. Warnford Lock. Professor Roberts-Austen presided. The author said:—

Objects of Roasting.

In this connection roasting may be said to have a dual object—physical and chemical. The physical result aimed at is an increase in the porosity of the rock, and in some few instances—notably where cyanide treatment is to follow—this may be the chief desideratum. The chemical change sought to be brought about is the elimination of sulphur and arsenic, and the conversion of sulphides and sulphates, arsenides and arseniates, into oxides. The double object is accomplished by heat and air in one operation in properly-constructed furnaces, and is variously known as calcining, "sweet" roasting (since all acids are removed), oxidising roasting (because other salts become oxides), or roasting "dead" (alluding to the absence of sparks and the blackened appearance of the mineral when the roasting has been thorough). The physical disruption of the ore is, of course, further aided by the chemical changes taking place in its constituents, and thereby the isolation of the gold particles is facilitated. In the very great majority of instances—perhaps in all, except where bismuth or tellurium occurs in the ore—the gold exists in what is known as the "free" state; that is to say, it is not in chemical combination, but only in extremely intimate mechanical association with the other constituents, sandwiched, as it were, between the grains of pyrites, or what not. This is clearly shown by the fact that when such ores are ground sufficiently fine, the gold can be recovered from them by the medium of mercury. But the presence of sulphur, arsenic, &c., has a deterrent effect on the action of mercury, and their partially oxidised products, such as sulphates and arseniates, are even more detrimental, not only to amalgamation, but also to chlorination and other methods of gold recovery. Hence the complete transformation into innocuous oxides is generally an essential condition of successful roasting.

Principles of Roasting.

In discussing the principles which should guide the operator in conducting a roast, it is impossible altogether to avoid entering into chemical questions, as they underlie the operation. In the early days of the gold industry of this century these chemical problems were quite ignored, and many disastrous failures were incurred in consequence. The principal constituent of almost all ores which require roasting is iron pyrites, either the magnetic form, known as pyrrhotite or monosulphide (FeS), or the common variety, called pyrite, which is a bisulphide (FeS_2). If these minerals are subjected to heat without air, the sulphur is volatilised. If air has free access to them during heating, the sulphur burns, passing through the stage of sulphurous anhydride (SO_2), and rapidly becoming sulphuric anhydride (SO_3). This sulphuric anhydride

attacks the iron, and forms ferrous sulphate; and unless the heat be sufficiently great to decompose this sulphate of iron, much of the original sulphur will remain in that form. If the heat be duly raised and prolonged, the final result will be ferric oxide (Fe_2O_3); but if the heat be unduly raised or prolonged, some of this will be changed to magnetic oxide (Fe_3O_4), which is an objectionable feature, if chlorination is to follow; or, again, excess of heat, in presence of a lack of air, may even result in one atom of the sulphur being removed, and a fluid slag of monosulphide of iron being formed. Either, or all of these conditions, may be encountered simultaneously in different parts of the same furnace. Next in importance, if it be not, in some cases, of paramount importance, is arseno-pyrite, or mispickel, the arsenical sulphide of iron (FeAsS). The expulsion of arsenic would seem to be a much more complicated matter than the elimination of sulphur, because, while it is volatile only in the condition of arsenious acid, it will repeatedly undergo modifications in the furnace, according as the ever-varying atmosphere in contact with it is more sulphurous or more oxygenous. In presence of an excess of oxygen there is a tendency to form fixed arseniates of the iron and other metals present, and these arseniates are decomposed only at very high temperatures; therefore, rapid or intensified oxidation of arsenic is to be avoided.

Much the same remarks apply to antimonial sulphides (stibnite, &c.), which, as antimoniates, are even more troublesome than arseniates. Lead sulphide (galena) demands equal caution in controlling the rate of oxidation, by reason of its tendency to produce fusible compounds. Zinc sulphide (blende) requires a high temperature and an abundance of air. Enough has been said to indicate that the efficient roasting of mixed sulphides is not a simple matter. On an industrial scale perfection cannot be attained, and the main principle kept in view is to let the heating and oxidation be gradual at first, progressing regularly, and terminating at the highest point, which should not be prolonged beyond actual needs. This gives the best general result on the average ores dealt with, but special cases require special modifications. Thus, when antimony is in large proportion, steam is introduced as a source of hydrogen, to hasten the operation; when much copper is present, salt is added, if chlorination is to follow; and so on.

Furnaces.

The object of all the furnaces under discussion is to promote the access of heat and oxygen to the ore, hence their differences of construction depend in the main upon the means which are adopted to favour these ends. They may be first divided into two main groups, according as the ore is worked over, so as to expose new surfaces to the air and heat (a) by manual labour, and (b) by mechanical contrivances. (a) Manual furnaces are represented by the various forms of reverberatory calciner which have stood the test of time, and are still considered by many to be the most efficient furnace for securing a sweet roast.

The essential features of the common reverberatory are a long, broad, hearth, having a gentle inclination (say, 1 inch per foot) from the fire-end up towards the feed-end, and covered by a low-vaulted roof. The height of the hearth above the ground-line should be about 3½ feet, and its width about 12 to 15 feet, for most convenient operation. The length varies greatly—60 to 80 feet is desirable from the standpoints of fuel economy and efficiency—but these considerations are often overlooked or made subservient to economy in cost of construction, the length being reduced to 40 or even 30 feet. Sometimes the hearth is divided laterally into three or four sections by drops of a few inches each, but more generally the bed is of one uniform grade without divisions, though still called "3-hearth" or "4-hearth," which terms, however, simply indicate that the length is three or four times the width. The hearth should be built of brick set on edge, as close as possible, in fireclay. For the lowest section of the furnace, as well as for the fireplace and bridge, best firebrick will prove cheapest in the end. The upper sections of both hearth and vault may be of sound ordinary brick. The space beneath the hearth should be made solid with rubble, to conserve the heat. The thickness of the vaulted roof is generally one brick (9 inches), and the distance between hearth and vault commences at about 2 feet at the fire-end (less in a small furnace) and diminishes somewhat towards the other. It is essential that the fuel used be of a long-flamed character. The pulverised ore is fed on to the uppermost section of the hearth, and spread so as to lie 2 or 3 inches deep (about 15 lbs. per square foot), in a succession of ridges and furrows. Spreading is performed by heavy iron "paddles" or rabbling tools, which are admitted by small "working doors," in cast-iron frames 6 to 9 inches high, and tapering from 12 inches long on the outside to 18 inches on the inside. A series of these doors on each side of the hearth for its whole length, at intervals of about 6 feet, permit the charge to be periodically rabbled and moved on towards the fire. The working doors should alternate on the opposite sides. Long flues for condensation of the sulphurous and other vapours generated are necessary, and a chimney to give draught to the fire. The products of combustion from the fire, together with air entering at the fireplace and at the working doors, pass over the exposed surfaces of ore and produce the desired oxidation. The oxidised ore escapes through a slot in the hearth just behind the fire-bridge. Cosmo Newbery puts the average cost of roasting by reverberatory throughout Victoria at 18s. a ton, and figures which I collected in California last year show much the same cost there. This, of course, is simply throwing money away. Some economy of operative cost has been aimed at by building the furnaces with superposed hearths, but the increased cost of construction and expense for repairs seem to have more than counterbalanced the saving.

The effectiveness, then, of the hand-worked reverberatory is is gained at the sacrifice of fuel and labour. The oxygen carried in by the air entering at the fireplace, even when supplemented by special air pipes, is mostly consumed in supporting the combustion of the fire, leaving but little for effecting oxidation of the ore. The demands for the latter object are supplied by the air admitted at the working doors, which, however, is cold, and therefore lowers the temperature of the furnace and causes waste of fuel. If the work is hastened, not only is additional fuel consumed, but considerable mechanical loss of ore may be caused by the excessive draught. If the work is prolonged, the cost of labour is augmented. Therefore, it does not seem that any great improvement can be introduced in the reverberatory system, unless it be in the direction of utilising the waste heat for warming the fresh air supplies, which, however, does not promise to be very feasible.

(b) Mechanical furnaces comprise four distinct classes:—(1) shaft furnaces; (2) rotating cylinders; (3) mechanical rabblers; and (4) rotating beds.—1. Shaft furnaces have come into very limited use in calcining auriferous ores, despite the acknowledged advantages of dropping the ore in an ascending stream of hot air, which is sometimes sought to be attained, though very imperfectly, by making deep steps between the several hearths of the reverberatory. The well-known Stetefeldt furnace is an example of the crudest and worst form of shaft furnace, the ore falling without let or hindrance straight from the top to the bottom of a 30 or 40 feet shaft, which obviously does not permit of a sufficiently prolonged contact between ore and heated air to effect more than a partial roasting. It is quite unsuited to the purpose under review. To suppose that what occupies 12 to 18 hours in a reverberatory can be accomplished instantaneously, as it were, in a shaft furnace, is hardly reasonable. Nevertheless, experiments prove that a period of one minute suffices for the sweet roasting of a single pyrites grain under the most favourable conditions of temperature and access of hot fresh air. The problem is to apply those conditions on an industrial scale to enormous numbers of grains simultaneously. Another feature, which is of great importance economically, is the heat generated by the combustion of the ore. In theory, while the combustion of coal produces a temperature of about 5000° Fahr., the combustion of iron pyrites should produce at least 1800° Fahr., which is a higher temperature than is necessary for the operation, and allows a liberal margin for waste and imperfect combustion. This is verified in practice every day by the pile roasting of cupriferous pyrites, where fuel is used only to ignite the mass; and by the pyrites kilns of the sulphuric acid industry, where the ore broken to egg-size, is burned in thick beds without any fuel whatever; the oxygen of the air admitted suffices in both instances to support combustion once commenced. The essential differences in the conditions of the two cases of the acid works and the gold mill are—(a) that complete oxidation is not attained in the former, but is generally essential in the latter; (b) that the ore is in lumps in the one and in powder in the other; (c) that the sulphurous and other gases are utilised in the first and wasted in the second.

But considerable quantities of dust pyrites are made in breaking and hauling the ore at the acid works, and this fact led, many years ago, to the invention of a furnace for burning them, known as the Gerstenhöfer, which carries out to the full the principle of making the pyrites support its own combustion. The dust ore is caused to fall down a vertical shaft its descent being delayed by a number of triangular crossbars; these break up the stream of

A modification of the automatic rabbling furnace, which introduces the advantages of the drop action, is Denny's. A self-acting grate at the bottom of the hopper admits a charge at intervals. On the top shelf drying only is effected. The next shelf retains a 4 cwt. charge for 20 minutes or so, during which time the ore is continually stirred by the loose rake hanging from the revolving arm. A slide operated by a boy opens a slot in each iron shelf, which allows the charge to pass downwards at intervals till it finally reaches the lowest shelf. Besides the air entering by way of the fire place, additional supplies are furnished at about one-third of the height of the furnace, after being heated in a capacious air space immediately over the fire place. While possessing some good features, notably in the drop action and in lessening mechanical loss of dust by the numerous impediments to the draught, the destruction of the internal ironwork must be exceedingly rapid, making the cost of maintenance heavy, and adding to the risks of stoppage by disablement.

Rotating Beds,

or furnaces in which the rabbling mechanism is stationary while the roasting hearth revolves, are also typified by an old Cornish calciner, known as the Brunton. This is essentially a circular reverberatory, with a fire-brick hearth laid on a slightly convex iron table, which is made to revolve slowly. The ore, fed in at the centre of the low domed roof, is gradually worked towards the outer edge of the hearth by numerous iron "flukes" or blades projecting downwards from the roof. In treating arsenical pyrites in Cornwall, this furnace has an average capacity of 4 to 5 tons per 24 hours, employing one man per 12-hour shift, and consuming 1½ to 2 cwts. of coal per ton calcined, in addition to that consumed in generating power to give motion to the hearth. Therefore it cannot be regarded as economical. Nevertheless, a few modern furnaces have been founded on this type. Serjeant and Flude's, introduced some years since in Victoria, has the laudable object of utilising the sulphurous gases for making sulphuric acid, and recovering the arsenic as arsenious acid (white arsenic). The feed hopper delivers automatically, and can be adjusted to suit the demands of the ore and the speed of the furnace. No fire passes over the ore during roasting, but an abundant supply of heated air is furnished through holes in the crown of the furnace. In this respect the furnace is a great step in advance, and takes priority (with Fauvel's) over all others. The duration of the roasting can be nicely adjusted to the needs of the ore, and every product is utilised. This last feature, if not yet a pressing matter on most gold fields, is bound to assume greater importance, both on economic and sanitary grounds, in the near future, and no system can be regarded as perfect which entails waste. The mingling of the products of fuel combustion with the sulphurous vapours emitted by the ore acts injuriously, both in retarding the oxidation and in spoiling the gaseous product. On the other hand, this furnace needs as much motive power as the Brunton, and it is difficult to understand how a gradual and steady passage of the ore particles from the centre to the periphery of the hearth can possibly be secured by the operation of gravity alone.

Another modification of the Brunton, coupled with a short reverberatory, has been adopted in California. The ore, consisting of gold-mill concentrates, carrying antimony and lead, as well as the usual sulphurets, is worked from the ordinary reverberatories on to the horizontally revolving hearth, which is built of iron lined with fire-brick, measures 12 feet diameter, and has a central discharge opening. Motion at the rate of one revolution a minute is given to the rotating hearth by gearing beneath. The fire gases have to pass across the revolving hearth before reaching the stationary hearths. The furnace possesses no obvious advantages.

Conclusions.

The conclusions to be drawn from a study of the foregoing observations are neither very startling nor, perhaps, very original; but they have a practical bearing on the economics of gold milling. The leading feature to be striven for are:—1. Avoidance of manual labour, making both feed and discharge automatic; utilising gravity as much as possible for movement of the ore through the furnace; and reducing the moving parts and motive power of the furnace to minima.—2. Greatest possible economy of fuel, therefore the maximum attainable utilisation of the combustible contents of the ores themselves.—3. Provision of an abundance of oxygen, in the form of heated fresh air, accomplishing this by taking advantage of the waste heat of the furnace, and not consuming fuel specially for that purpose.—4. Most complete exposure of every particle of ore to the heated air.—5. Simplicity and economy in construction of furnace; fewness of wearing and working parts, which should be easily duplicated; and general accessibility for repairs.—6. Utilisation of all products of the operation, so far as that is possible.

Considering the great variety of gold-bearing ores that have to be dealt with, it is hardly likely that one form of furnace will be found to meet all requirements with a maximum degree of efficiency. For instance, though fine crushing would much hasten oxidation, it is not always admissible, on account of subsequent treatment. Then the percentage of combustible matter (sulphur, arsenic, &c.) in the ore must have an important bearing on the form of the furnace. Again, the quantity of material to be dealt with may have to be considered; few mills produce sufficient concentrates to fully occupy any of the mechanical furnaces described, and this fact seems to have helped to prolong the survival of the hand-worked reverberatory in many places, although that would seem to be a poor excuse for such costly manipulation as it entails. Speaking generally, I am inclined to think that the several kinds of furnace will have their most useful spheres defined by the following conditions:—For finely-ground (40 mesh and finer) clean sulphurets, in which absolute sweetness is not essential, a shaft furnace. For coarsely-ground (less than 40 mesh) sulphurets, and for only moderately sulphuretted ores, a revolving cylinder. For any ore which requires an absolutely sweet roast, a mechanical rabbler with fixed hearth.

INSPECTOR OF MINES.—In the House of Commons, on Thursday, Mr. Hozier asked the Home Secretary whether he could now see his way to increase the number of Inspectors of Mines for Scotland; and whether he would take care that the appointments in Scotland should be given to Scotsmen.—The Home Secretary replied: I should be glad, in view of the heavy and constantly increasing burden laid on the Inspectors by the Legislature and by public opinion, to see the staff increased in number both in Scotland and elsewhere. I fear, however, I shall not be able to make any further addition to it during the coming financial year. I cannot assent to the assumption underlying the second part of the question, that appointments in each of the three countries of the United Kingdom should be confined to natives of that country. (Cheers.) There is no part of the empire which would suffer more from a logical and rigorous application of that principle than Scotland. (Laughter.)—Dr. MacGregor: Are we to infer from that that Scotsmen are not capable of filling these posts? (Loud laughter.)

The share list in PARDY'S MOZAMBIQUE SYNDICATE (LIMITED) will be closed from the 8th to 16th instant for the declaration and payment of the fourth interim dividend.

THE METAL MARKETS.

LONDON METAL MARKET.

THE METAL MARKET, LONDON, MARCH 8.

Copper.

THE course of the speculative market for G.M.B.'s this week has been quite uneventful, and the fluctuations in value have been confined to a narrow range. The business on Monday consisted of about 600 tons at £38 18s. 9d. to £38 17s. 6d. for prompt, and £39 8s. 9d. to £39 7s. 6d. for forward. On Tuesday, 600 tons again changed hands, but spot was sold as low as £38 13s. 9d., the flatness of the American market discouraging speculators. On Wednesday, the turnover amounted to about 500 tons, whilst the value recovered to about its former level, spot being done at £38 17s. 6d., and three months at £39 5s. and £39 6s. 3d. Yesterday the volume of business shrank to 250 tons, at £38 18s. 9d. for s.c. To-day, after business at £38 17s. 6d. s.c., and £39 6s. 3d. to £39 5s. three months, the market closed steady at £38 17s. 6d. s.c. buyers, and £39 5s. three months. Refined and manufactured copper are quiet, and prices are rather less firm. The latter description is, however, rather more enquired after.

Tin.

This market opened at £60 7s. 6d. s.c. Straits and £60 17s. 6d. three months, but the moderate sales sufficed to depress values by Tuesday to £59 17s. 6d. s.c. and £60 5s. three months. The turnover amounted to 500 tons for the two days. On Wednesday 120 tons changed hands, and the market closed in the evening in firmer tendency, with cash at £60 and forward at £60 8s. 9d. The following day brought at first an improvement to £60 2s. 6d. s.c., and then a relapse to £59 18s. 9d., with a turnover of 120 tons, and to-day the weaker tendency continuing, the price of spot tin declined to £59 16s. 3d. The close is, however, distinctly firmer at £59 17s. 6d. to £60 s.c. and £60 5s. to £60 7s. 6d., three months. In the Dutch markets the price of spot Billiton has ranged from fl. 36¼ to 36½, closing at the lowest, with three months at 36⅜, and Banca at fl. 36½ (Friday morning's prices).

Pig Iron.

The Glasgow market opened at 42s., and with few upward rallies went steadily downwards, 41s. 3½d. being reached on Friday. The market closed steady at 41s. 3d. buyers of cash Scotch, whilst hematite and Cleveland are quoted respectively 42s. 4½d. and 34s. The shipments from Scotland last week were 5062 tons, as against 7077 tons for the corresponding week of 1884.

Lead.

All lead-consuming industries have suffered so seriously and so long from the severity of the weather that consumption still remains at a very low ebb. This state of affairs has been reflected in the flat market here. The close, however, shows a decided improvement, and the final values are £9 11s. 3d. buyers soft foreign, and £9 13s. 6d. English.

Spelter.

The general slackness of trade is responsible for the continued quietude of this market, which closes dull at £13 10s. to £13 12s. 6d. ordinaries, and £13 15s. to £14 specials.

Antimony

continues very quiet, and closes at £31 10s. to £32.

Quicksilver

is steady at £6 10s. firsts, and £6 9s. to £6 9s. 6d. seconds.

The following are to-night's (March 8) prices of metals:—

	£ s. d.	£ s. d.
Copper.		
Tough cake and ingot	41 15 0	42 5 0
Best selected	42 5 0	42 15 0
Sheets and sheathing	49 10 0	50 10 0
Flat bottoms	52 10 0	53 10 0
Chill bars	spot, & 3 months respectively 38 17 6	39 5 0
Good merchantable,		
Copper tubes, seamless	—	0 0 7
Alloys.		
BRASS: Wire	—	0 0 5
" Tubes (solid drawn)	—	0 0 5¾
" Sheets	—	0 0 5¾
PHOSPHOR BRONZE: Alloys II.	—	78 0 0
" " III. or VII. } Cog Wheel Brand	—	81 0 0
" " XI.	—	83 0 0
" " Vulcan brand A1	—	78 0 0
DURO METAL	—	72 0 0
BULL'S METAL	—	73 0 0
	—	65 0 0
Ferrobronze (Vivian's).		
Ingots ...per lb.	0 0 6¾	— —
Ordinary sheets, plates, bolts and bars	0 0 6½	— —
Screw bolts and nuts	0 0 8	— —
Pump rods, plain	0 0 7	— —
" finished	0 0 10	— —
DELTA METAL: No. 4 (per ton)	—	— —
" Sheets and plates (per lb.)	—	— —
" Bars, round, square, flat (per lb.)	—	— —
" " hexagon (per lb.)	—	— —
Tin.		
English, ingots, f.o.b.	83 10 0	84 0 0
" bars	84 10 0	85 0 0
" refined	85 10 0	86 0 0
Straits, spot and 3 months respectively	80 0 0	80 5 0
Australian spot, and three months respectively	80 5 0	80 10 0
Banca " (in Holland)	81 2 6	81 5 0
TIN PLATES: Charcoal, best quality per box	0 13 0	0 14 0
" ordinary	0 10 6	0 11 0
" Coke, best quality	0 9 6	0 10 0
" " ordinary	0 8 0	0 9 3

These prices of tinplates are f.o.b. at Swansea; at Liverpool 6d. per box more.

Iron.		
Pig, G.M.B., f.o.b., Clyde, spot	—	2 1 3
" Scotch pig, No. 1 Gartsherrie	—	2 10 0
" " Coltness	—	2 13 0
" " Clyde	—	2 8 6
" " Govan	—	2 5 0
Bars, Welsh, f.o.b. Wales	—	4 17 6
Plates "	—	5 12 6
Bars, Staffordshire, at works	—	4 17 6
Sheets " "	—	5 5 0
Plates " "	—	5 7 6
Hoops " "	—	5 12 6
Ship plates, Middlesborough	—	4 12 6
STEEL: English spring	—	10 0 0
" " cast	—	42 0 0
" Rails at works, according to section	8 10 0	4 15 0
Lead.		
Spanish or soft foreign	—	9 11 3
English pig, common	—	9 13 9
" L.B.	—	10 5 0
" sheet	—	10 15 0
" bar lead	—	10 15 0
" pipe	—	11 5 0
" red	—	12 0 0
" white	—	16 5 0
" patent shot	—	14 0 0
Spelter.		
Silesian ordinary brands	13 10 0	13 12 6
" special brands	13 15 0	14 0 0
English Swansea	14 5 0	14 10 0
Sheet Zinc	17 7 6	17 10 0
Antimony.		
Antimony	31 10 0	32 0 0
Quicksilver.		
Flasks, 75 lbs. warrants	6 9 0	6 10 0
Manganese.		per unit.
Ore, c.i.f., U.K. ports		
1st quality, 50 per cent. and upwards	0 0 10½	0 0 11
2nd " 47 per cent. to 50 per cent.	0 0 9	0 0 10
3rd " 40 " 47 per cent.	0 0 8	0 0 9
Aluminium.		Per lb.
98–99½ per cent. (guaranteed 98 per cent. min.)	in ingots (1 cwt. lots)	0 1 7
do do	(1 ton lots)	0 1 6
Nickel.		
98–99 per cent. guarantee	0 1 3	0 1 4

METALLIFEROUS MINES ACT.—In the House of Commons, on Thursday, the Home Secretary, in reply to Mr. Ainsworth, said he was not without hope of being able during the present Session to introduce a Bill to amend the Metalliferous Mines Act, but he could not at the present moment give a definite pledge.

"THE MINING JOURNAL" SHARE LIST.

ABBREVIATIONS AND REFERENCES.—The following are the significations of the abbreviations and references which occur in the Share List:—*Ay*, Antimony; *A*, Arsenic; *Bl*, Blende; *Bx*, Borax; *C*, Copper; *D*, Diamond; *G*, Gold; *I*, Iron *L*, Lead; *M*, Mundic; *N*, Nitrates; *P*, Phosphates; *Q*, Quicksilver *R*, Ruby; *S*, Silver; *S-l*, Silver-lead; *Sul*, Sulphur; *T*, Tin; and *Z*, Zinc. * in the "called up" column of British Mines, signifies that the mine is conducted on "Cost Book" principles: ‡ in the "Head Office" column of African Mines, signifies that the address given is not that of the head office, but of a sub- or transfer office and †, following the names of African mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct; we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

BRITISH MINES.

Name	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par. £ s.	Latest Dividend	Called up Per Share. £ s. d.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Blue Hills ....CT	2/6 5/-	2/6	*	2/- May, '81	5 15 6	5,353	Cornwall	Camborne.
Botallack ... T	—	—	*	—	51 4 6	1,880	Cornwall	St. Just.
Carn Brea ....T	2/6 7/6	10/-	*	2/6 Dec., '93	22 8 5	6,000	Cornwall	Carn Brea.
Cook's Kitchen ..T	15/- 25/-	15/-	*	—	35 15 10	4,900	Cornwall	Camborne.
Devon Gawton CA	par ¼ pm.	p. ½ p.m	1 0	—	0 12 6	25,000	Near Tavistock	8, Finsbury circus.
Devon Gt Cons. CA	1½ 1¾	1⅛	5 0	3/- Nov. '94	2 0 0	10,240	Devon	8, Finsbury circus.
Dolcoath ....T	33 34	34	*	12/6 Apr. '94	9 12 6	4,700	Cornwall	Camborne.
Drakewalls CTM	—	—	0 5	—	0 2 0	61,856	Cornwall	Dashwood House.
East Pool ....AT	4½ 5	4½	*	1/6 Sept, '94	0 9 9	6,400	Cornwall	Illogan.
Gawton ....CA	—	—	2 10	—	2 7 0	12,000	Devon	20, Great St. Helens.
Great Laxey....L	1⅛ 2	1⅛	4 0	5/- Apr., '92	4 0 0	15,000	Isle of Man	Douglas, Isle of Man.
Green Hurth ...L	1/6	1/6	1 0	-/6 June '89	0 19 0	32,000	Cumberland	Newcastle.
Halkyn L	—	—	1 0	2/- Dec. '94	1 0 0	10,000	Flintshire	Chester.
Hexworthy ....T	—	—	1 0	—	1 0 0	14,634	Devon	6, Queen-street-place
Isle of Man L	—	—	5 0	1/6 Dec, 94	5 0 0	14,000	Isle of Man	Chester.
Killifreth ....T	12/6 17/6	12/6	*	1/6 Nov., '94	5 11 6	6,000	Cornwall	Truro.
Leadhills L	15/- 20/-	15/-	6 0	3/- Sep. '92	6 0 0	20,000	Lanarkshire	30, Finsbury-circus.
Levant ....CT	—	—	*	4/- Nov., '94	11 9 6	2,500	Cornwall	Penzance.
Lovell ....T	—	—	*	1/3 Nov., '91	1 16 7	7,185	Wendron	3, Gt. Queen-st., S.W.
Minera....L	—	—	5 0	5/6 Mar. '90	5 0 0	9,000	Denbighshire.	Minera, N. Wales.
Nenthd&Tndle. LZ	3/6	3/6	1 0	6% Feb., '91	0 18 0	48,8?5	Northumberld	Newcastle-on-Tyne
NewCooksKitn. TC	—	—	*	—	10 18 3	4,900	Cornwall	Camborne.
New Minera	—	—	1 0	1/- Oct., '92	1 0 0	30,000	North Wales	6 Queen street-place.
Parc ....LZ	—	—	1 0	—	1 0 0	5,000	Llanrwst	Billiter sq. buildings
Phœnix United TC	1/6 2/-	1/6	*	1/- Mar. '90	7 4 6	10,665	Cornwall	Liskeard.
Polberro ....T	12/6 17/6	12/6	*	—	3 7 9	18,000	Cornwall	37, Walbrook.
So. Condurrow TC	2/6 7/6	2/6	*	3/6 Apr. '93	7 17 6	6,123	Cornwall	20, Great St. Helens
South Crofty TA	2/6 7/6	2/6	*	—	17 7 6	6,120	Cornwall	Pool, Cornwall.
S. Frances Untd. T	2/6 7/6	2/6	*	—	2 7 6	6,000	Cornwall	Redruth.
Tincroft ....T	4¼ 4¾	4¾	*	2/- Aug. '94	15 7 6	6,000	Cornwall	Carn Brea.
Weardale L	8/9	8/9	4 0	1/3 Oct. '90	1 10 0	50,000	Durham	3, Lombard-court.
West Frances ...T	2/6 7/6	2/6	—	2/6 May, '89	16 4 7	6,144	Cornwall	Camborne.
West Kitty ....T	5 5½	5	*	2/- Dec, '94	1 2 0	6,000	Cornwall	37, Walbrook.
Wheal Agar ..TA	2/6 7/6	2/6	*	2/6 Aug. '88	23 15 2	6,000	Cornwall	Redruth.
Wheal Basset ...TC	10/- 15/-	10/-	*	10/- Apr. '88	12 3 0	6,144	Cornwall	Redruth.
Wheal Friendly..T	-/6 1/-	-/6	*	—	0 12 9	10,000	Cornwall	110, Cannon-st., E.C.
Wheal Grenville T	9½ 10½	10½	*	2/6 Nov. '94	18 2 0	6,000	Cornwall	7, Union-court, E.C.
Wheal Kitty....T	1/- 3/-	1/-	*	3/- Mar. '88	4 5 8	8,590	Cornwall	Truro.
Wheal Metal & F. T	1/- 1/6	1/-	*	—	0 13 9	10,784	Cornwall	14, Broad-street Av.

AUSTRALIAN AND NEW ZEALAND MINES.

Name	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Abbotts ....G	10/- 15/-	11/3	1 0	—	0 17 6	100,000	Murchison	17, Old Broad st
Achilles Gld Fld.	2/ 3/	2/-	1 0	—	1 0 0	80,307	New Zealand	3, Church Pas, E.C
Aladdins Lamp G	18/9 21/3	18/9	1 0	1/- Mar. '95	1 0 0	100,000	N. S. Wales	4-6, Throg. Avenue.
Assoc. Gold Mines	¼ dis ⅛ dis	p ⅛ pm	1 0	—	0 10 0	375,000	Coolgardie	Broad Street Avenue
Austin.... G	22/6 25/	20/-	1 0	—	1 0 0	50,000	W. Australia	23, College hill, EC
Australasian ....G	4/6 5/	4/9	1 0	-/6 Mar., '92	1 0 0	210,000	Queensland	6, Queen-st. place
Australian C	—	—	20 0	1/6 July '94	7 7 6	18,315	So. Australia	15, Old Jewry Chbrs
Aus. Bro. Hill Con.	1/3 1/9	1/3	1 0	1/- June, '91	1 0 0	537,138	N. S. Wales	Dashwood House.
Baker's Creek ...G	1 1⅛ xd	1	1 0	1/- Feb. '94	0 17 6	100,000	N. S. Wales	Hillgrove, N.S.Wales
Bayley's Reward G	9/6 10/6	10/-	1 0	-/4 Dec. 94	1 0 0	480,000	W. Australia	F'sb'y. H. Bl'mf'ld St.
Big Blow ....G	⅜ ⅞	13/16	1 0	—	0 15 0	100,000	W. Australia	Blomfield Ho., E.C.
Blackett's Claim G	8/3 8/9	7/6	1 0	—	1 0 0	60,000	W. Australia	14, Sherborne ln..E.C.
Blue Spur & G. G.	-/6 1/-	-/6	1 0	—	1 0 0	80,098	New Zealand	6, Gt. St. Helens'
Bonnie Dundee G	16/- 17/-	15/6	1 0	—	0 18 6	120,000	Queensland	3-5, Gracechurch-st
Brilliant....G	17/ 18/	17/	2 0	-/4 Feb. '95	2 0 0	250,000	Queensland	Charters Towers.
Brilliant Block...G	1 13/16 1 15/16 xd	1 13/16	2 0	-/6 Mar. '95	2 0 0	250,000	Queensland	3, Gracechurch-st.
Brilliant, St. Geo.	1 1/16 1 7/16	1⅜	0 10	6d. Feb. '95	0 6 3	72,000	Queensland	Charters Towers.
Brit. Brok. Hill S	4/ 5/-	4/6	5 0	—	5 0 0	240,000	N. S. Wales	Dashwood Ho., E.C.
Broken Hill Prop.	1¾ 1⅞ xd	1⅞	0 8	1/- Feb. '95	0 8 0	960,000	N. S. Wales	Dashwood Ho., E.C.
Brown's Creek ...G	1⅛ 1¼	1 3/16	—	—	—	—		
Cashman Bril.... G	5/16 5/16	⅜	1 0	—	1 0 0	60,000	Coolgardie	14, Sherborne ln. E.C
Carrington....G	7/6 8/	4/9	12/6	—	0 12 6	100,007	Queensland	9, Tokenhouse Yard,
Con. G. M. of W. A.	1/16 dis 1/16 pm	p ⅛ pm	1 0	—	0 12 6	90,000	W. Australia	14, Hill st., Edinboro'
Coolgardie....G	-/4½ -/7½	-/9	0 2	—	0 0 6	40,000	Coolgardie	Winchester House.
Coolgardie(Shriws)	15/6 16/6	11/-	1 0	—	0 5 0	—	Coolgardie	Broad Street Avenue.
Craven's Cal. G	3/6 4/6	3/6	0 6	-/3 June 94	0 4 8	100,000	Queensland	30-1, S. Swithin's-le.
Crown Bayley's. G	1/16 ⅛ pm	1/16	1 0	—	0 10 0	80,000	Coolgardie	Bishopsgate Ho. E.C.
Croydon King B. G	3/- 5/-	3/-	0 5	—	0 5 0	60,000	N. Queensland	Leadenhall Blg. E.C.
Cumbrind (New) G	3/6 4/-	3/3	1 0	2/6 Dec, '87	0 18 6	184,890	Queensland	Blomfield House E.C
DayDawn B.&W. G	11/ 12/-	11/6	1 0	-/6 Mar. 93	1 0 0	498,400	Queensland	3-5, Gracechurch-st,
Day Dawn P. C. G	5/- 5/6	5/-	1 0	-/6 Apr. '92	1 0 0	490,000	Queensland	Winchester Ho., E.C
Eaglehawk....G	1/3 1/9	1/6	1 0	—	0 19 9	120,000	Victoria	31, Lombard-street,
Empress Coolge. G	⅛ ⅛ dis.	⅛	1 0	—	0 10 0	90,000	W. Australia	2, Tokenhouse bldgs
Eng. & Aus. Cop. Cu	1/16	1/16	2 0	2% 1883	1 17 6	70,000	So. Australia	136, Palmerston-blds
Etheridge ....G	-/1⅛	-1⅛	0 5	—	0 5 0	324,290	Queensland	6-7, Queen-street-pl.
Frederick the Gt G	par. ⅛ pm.	p. ⅛ pm.	1 0	—	1 0 0	125,000	Victoria	St. George's House.
Glenrock .... G	1/3 1/9	1/3	1 0	—	1 0 0	225,000	N. Zealand	3-5, Queen-st. E.C.
Golconda ....G	20/- 22/6	18/9	1 0	—	1 0 0	68,086	Murch's'nW.A.	14, Sherborne ln., E.C
Gold Estates....	1⅛ 1¼	1 1/16	1 0	—	0 10 0	80,000	W. Australia	42, Gresham House.
Great Boulder ...G	12/ 13/	11/6	1 0	—	1 0 0	119,380	W. Australia	3, Gracechurch st.
Great Coolgardie...	⅜ ⅞	¾	1 0	—	0 10 0	85,000	Coolgardie	3, Budge Row.
Great Fingall Rfs.	2 2¼	2	1 0	—	1 0 0	175,000	Kurnalpi WA	Broad Street House.
Golden Gate.... G	1/9 2/3	1/6	0 10	—	0 10 0	150,000	Queensland	9, Tokenhouse Yard.
Hampton Lands...	3⅛ 3¼	3¼	1 0	10/- Nov. '94	1 0 0	64,075	W. Australia	1, Whittington Avue
Hampton Plains...	1 9/16 1 11/16	1 11/16	1 0	—	0 4 0	350,000	W. Australia	29, S. Swithin's lane
Hannan's BrwnHil	1 9/16 1 7/16	1⅜	1 0	—	1 0 0	65,000	Coolgardie	Broad Street House
Kaboonga ....G	2/9 3/3	2/3	0 10	—	0 9 9	500,000	Queensland	70-71, Bishopsgate st.
Kangarilla .... S	2/6 3/6	2/6	1 0	—	1 0 0	88,275	So. Australia	68, Coleman-street,
Kapanga....G	7/- 7/6	7/-	1 0	-/6 Jan. '91	0 19 6	250,000	N. Zealand	9, New Broad-street
Kilkivan....G	—	—	1 0	—	1 0 0	81,392	Queensland	4, Coleman-street.
Kinsella ....G	17/6 20/	18/9	1 0	—	1 0 0	80,000	Murch's'nW.A.	33, Broad-st. Avenue
Lady Loch....	1/16 dis 1/16 pm	1/16 dis	1 0	—	0 10 0	70,000	Coolgardie	9, Tokenhouse Yard,
Lady Mary Amalg.	1⅜ 1⅛	1⅜	1 0	—	1 0 0	46,000	Murchison	Blomfield House.
Lindsay	par ⅛ pm.	1/16	1 0	—	0 10 0	65,000	Coolgardie	15, Angel Court.
Londonderry.... G	22/6 26/6	5/-	1 0	—	1 0 0	467,000	Coolgardie	3, Gracechurch-st,
L.& W. Aust. Expl.	1¾ 1⅞	1⅝	1 0	20 p.c. Dec, '94	1 0 0	100,000	W. Australia	Broad Street Ho.
Mainland Cons. G	⅛ ¼ pm	1/16	1 0	—	0 10 0	150,000	Murchison	14, Old Broad Street
Mawson's Rewrd. G	17/6 20/-	13/9	1 0	—	0 10 0	60,000	W. Australia	28 & 29, S Swithin's ln
Mills' Day Dawn G	1⅜ 1⅛ xd	1⅜	1 0	-/6 Feb. '95	0 15 6	300,000	Queensland	3, Gracechurch-st.
Mosman ....G	4/9 5/3	4/3	1 0	—	1 0 0	58,225	N. S. Wales	16, St. Helen's-place
Mt. Leyshon ....G	—	—	1 0	-/6 Dec. '90	1 0 0	157,989	Queensland	7, Draper's-gardens
Mountain Maid G	2/- 3/-	2/-	0 10	—	0 6 3	56,000	Queensland	Leadenhall Bldgs.
Mount Morgan G	2 9/16 2 11/16	2 9/16	1 0	-/6 Feb. 95	0 17 6	1,000,000	Queensland	50, Lime-street.
Mount Zeehan SL	-/6 1/-	-/6	1 0	—	1 0 0	193,257	Tasmania	Mansion Ho. Cham.
New Queen ....G	7/- 8/-	6/-	1 0	-/6 Apr., '94	0 19 6	158,915	Queensland	30, St. Swithin's-la.
Nicol Mines	⅛ ¼ pm.	⅛	1 0	—	1 0 0	15,000	Pilbarra, W.A.	151, Cannon St., E.C.
North Coolgardie..	3/- 3/6	3/-	0 5	—	0 4 0	85,000	Coolgardie	226, Winchester Ho.
N. Q'ld. M. Agency	23/6 24/6	23/6	1 0	2/6 Jan. '95	1 0 0	90,000	Queensland	10, New Broad Street
Port Phillip ....G	-/3 -/9	-/3	0 5	—	0 5 0	200,000	Victoria	57, Moorgate-st., E.C
Queen's Bthdy Un	11/ 12/	11/3	1 0	—	0 12 6	75,000	Victoria	7-8, Gt. Wnchster St
ScottishAustralian	⅝ ⅞	⅝	1 0	4 4-5d. Nov, '94	1 0 0	200,00	N.S. Wales	Winchester Ho. E.C
Sunburst....G	—	—	0 10	-/6 Mar. '92	0 10 0	150,000	Queensland	9, Tokenhouse Yard
Victoria Associatn.	—	—	1 0	-/3 Mar. '95	1 0 0	144,000	Char. Towers	6, Crosby-square
Victory.... G	6/ 7/	5/6	0 5	-/6 Mar., '94	0 5 0	200,000	Queensland	32, Gresham-st, E.C
Waihi.... G	6⅛ 6⅜	6	1 0	2/- Jan, '95	1 0 0	150,000	New Zealand	11, Abchurch-ln E.C
Wentworth Exten.	3/9 4/3	3/9	0 5	—	0 5 0	178,828	N. S. Wales	19, S. Swithin's Lane
Wentworth Ord. G	7/- 8/-	7/-	1 0	—	1 0 0	350,000	N. S. Wales	4-6, Throgmort. Av.
Went. Priority...G	16/- 17/-	16/-	1 0	3/- Apr. '95	1 0 0	150,000	N. S. Wales	4-6, Throgmort. Av.
W. Argentine ....G	1/3 1/9	1/3	1 0	—	0 19 6	150,000	N. Zealand	3-5, Queen-street.
W. Aust. Concessn	1⅝ 1⅞	1⅝	1 0	1/- Jan. '95	1 0 0	17,500	W. Australia	33, Old Broad st., EC
W. Aus. Exploring	7/16 9/16 pm	7/16	1 0	—	0 15 0	200,000	W. Australia	54, Old Broad st., EC
W. Australian G.F.	3⅜ 3⅝	3 9/16	1 0	2/6 Dec., 94	1 0 0	65,000	W. Australia	28-29, S. Swithin's-ln.
W. Aust. Mining	5/ 6/	5/6	1 0	—	1 0 0	104,297	W. Australia	257, Winchester Ho.
W. Mallina .. ...G	2/- 2/6	2/-	0 5	—	0 3 0	80,000	W. Australia	Winchester House,
White Feather ...	2⅛ 2¼	2⅛	1 0	—	1 0 0	60,000	W. Australia	28 & 29, S. Swithin's ln
Zapopan....G	6/9 7/3	6/6	1 0	—	0 5 0	—	—	70, Bishopsgate-street
Zeehan Montana S	—	—	1 0	4d. Mar. 95	1 0 0	66,?00	Tasmania	11, Queen Victoria st.
Zeehan Montana S	—	—	1 0	5d Aug., 94	0 12 6	12,600	Tasmania	11, Queen Victoriast.

EUROPEAN MINES.

Name	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Alamillos L	10/- 15/-	10/-	2 0	-/6 April '95	2 0 0	35,000	Spain	6, Queen-street-place
Avala .. ....Q	0 ⅛	0	1 0	1/- May '93	1 0 0	150,047	Servia	4, Tokenho. Bldgs.
Consett Ore I	5⅜ xd	5¾ xd	1 0	5/- July 94	1 0 0	55,20	Spain	19, Grey-st., N'castle.
English Cr. Spelter	⅜ ⅝	⅜	1 0	2½% Aug. '94	1 0 0	84,000	Lombardy	9, Queen-street-place
Fortuna L	17/6 22/6	17/6	2 0	1/- April '95	2 0 0	25,000	Spain	6, Queen-street-place
Libiola....C	3¼ 3⅛	3¼	5 0	2/6 Aug. 94	5 0 0	50,400	Italy	Dashwood Ho., E.C.
Linares L	3⅞ 4⅛	3⅞	3 0	4/6 April '94	3 0 0	14,998	Spain	6, Queen-street-place
Mason & Barry...C	1⅝ 1⅞	1 11/16	5 0	2/- May. '94	5 0 0	135,172	Portugal	87, Cannon-street.
Oscar ....G	—	—	5 0	—	0 4 6	117,240	Norway	6A, Austin Friars.
Pestarena ....G	4/6 5/6	4/6	3 0	—	3 0 0	67,809	Italy	6-7, Queen-street-pl.
Pontgibaud ....SL	—	—	20 0	11/6 Dec. '94	20 0 0	14,000	Couëron, Fr.	6-7, Queen-street-pl.
Rio Tinto C	12⅞ 13	12⅜	10 0	4/- Oct., '94	10 0 0	325,000	Spain	30, St. Swithin's-lane
Do. (Mort. Bonds)	105 107	105	100 0	5% Jan., '95	100 0 0	£1892,740	Spain	30, St. Swithin's-lane
Do. (2nd do.)	103 105	102	100 0	5% Jan. '95	100 0 0	£1024,860	Spain	30, St. Swithin's-lane
Do. (3rd do.)	101 103	101	100 0	5 p.c. Jan., 95	100 0 0	£587,080	Spain	30, St. Swithin's lane
Ripanji .... Q	8/- 10/-	8/-	1 0	—	0 19 0	95,000	Servia	120, Bishopsgt-st. W.‡
Tharsis.... C Sul	4⅜ 4⅝	4⅜	2 0	12½% Mar. '94	2 0 0	625,000	Spain	Glasgow.
West Prus Pre. pref	—	—	10 0	8% Jan. 95	10 0 0	365	Germany	Walbrook Ho., E.C.
West Prussian Pre.	—	—	10 0	8% Jan. '95	10 0 0	5,450	Germany	Walbrook Ho., E.C.
West Prussian Or.	—	—	10 0	8% Jan. '95	10 0 0	14,050	Germany	Walbrook Ho., E.C.
Wohlfahrt L	—	—	1 0	3% Dec. '94	1 0 0	98,634	Prussia	17, Victoria-st., S.W.
Wohlfahrt	—	—	1 0	3% Dec, '94	0 10 0	9,090	Prussia	17, Victoria-st., S.W.

INDIAN AND ASIATIC MINES.

Name.	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par. £ s.	Latest Dividend.	Called up per Share. £ s. d.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Asia Minor Pref. Sl.	—	—	0 10	—	0 10 0	42,430	Asia Minor	2, Metal Ex Bldgs.
Do. Ord. ...	—	—	1 0	—	0 9 0	51,584	Asia Minor	2, Metal Ex. Bldgs.
Balaghat Mysore G	3/3 3/9	3/3	1 0	—	0 19 0	160,000	India	6-7, Queen-street-pl.
Burma Ruby....R	11/6 12/6	11/6	1 0	—	0 18 0	300,000	Burmah	Suffolk House, E.C.
Champion Reef...G	3 15/16 4 1/16	3 15/16	1 0	3/- Jan. '95	1 0 0	200,000	India	6-7, Queen-street-pl.
Colar Central .. G	-/6 1/-	-/6	1 0	—	1 0 0	200,000	India	Dashwood Ho., E.C.
Coromandel.... G	5/- 6/-	5/-	1 0	—	0 13 9	95,000	India	6-7, Queen-st.-place.
Devala Moyar ...G	—	—	1 0	—	1 0 0	200,000	India	34, Nicholas-lane.
Gemming&Mining	—	—	2 0	—	1 7 6	19,594	Ceylon	183, Gresham House.
GoldFldsMysore G	17/- 19/-	17/-	1 0	1/- July '92	1 0 0	220,000	India	6-7, Queen-street pl.
Gold Flds Siam G	—	—	1 0	—	1 0 0	150,000	Siam	19, St. Swithin's-lane.
Hyderabad Dec. ..	8⅜ 8⅝	8⅝	10 0	—	10 0 0	115,000	Deccan	16, St. Helen's-place.
Kempinkote GdFd	2/- 2/6	2/-	0 5	—	0 3 6	665,473	India	6-7, Queen-st.-place.
Mysore .... G	2⅝ 2¾	2 13/16	1 0	2/- Feb. '95	1 0 0	250,000	India	6-7, Queen-street pl.
My. Harnhalli .. G	1/9 2/3	1/6	1 0	—	0 18 0	100,000	India	2, East India Avenue
Mysore Reefs ...G	5/6 6/6	6/6	1 0	—	1 0 0	134,788	India	6-7, Queen-street-pl.
Mysore West(N) G	12/6 13/6	12/6	1 0	—	0 19 0	127,408	India	Dashwood Ho., E.C.
Mysore Wynaad G	12/- 14/-	12/-	1 0	—	0 19 0	250,000	India	Dashwood Ho., E.C.
Nine Reefs ....G	2/6 3/-	2/6	0 10	—	0 10 0	50,000	India	6-7, Queen-street-pl.
Nundydroog....G	1⅞ 2	1⅞	1 0	1/6 Mar. '95	1 0 0	200,000	India	6-7, Queen-street-pl.
Ooregum (Df.O.) G	2⅞ 3	2¾	1 0	2/6 Nov. '94	1 0 0	145,000	India	6-7, Queen-street-pl.
Do. (10% Pref.).	3⅜ 3⅝	3⅜	1 0	2/6 Nov. 94	1 0 0	95,536	India	6-7, Queen-street-pl.
Do. (10 % Pref.).	2¾ 3	2⅞	1 0	2/6 Nov. '94	0 5 0	24,464	India	6-7, Queen-street-pl.
Pahang Corpn. T	—	—	1 0	15% Apr. '89	1 0 0	203,070	Malay Penin.	Blomfield Ho., E.C.
Pahang Kabang T	1/16 3/16	1/16	1 0	—	1 0 0	394,760	Malay Penin.	4a, Jeffrey's sq., E.C
S. Aust. Petroleum	1/3 1/9	1/3	1 0	—	0 18 6	108,000	Burmah	12, Pancras Ln., E.C.
Yerrakonda ....G	2/3 2/9	2/6	0 4	—	0 2 6	—	Mysore	6-7, Queen-street-pl.

NORTH AMERICAN MINES.

Name.	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend.	Called up per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Alaska Mexican...G	1 1⅛	1	$5	7 1-5d. Nov. 94	$5	160,000	Alaska	30, St. Swithin's-ln
Alaska Treadwell G	3⅝ 3⅜ xd	3⅝	$25	1/6 Jan., '95	$25	200,000	Alaska	30, St. Swithin's-ln.
Almada and T... S	-/3 -/6	-/3	2/6	—	0 2 6	351,008	Mexico	6, Queen-street-place
American Belle...S	1/- 1/6	1/-	1 0	-/6 Mar. '91	1 0 0	398,890	Colorado	25A, Old Broad-street
Anglo Mexican ...S	—	—	5 0	3/- Jan. '90	5 0 0	74,850	Mexico	23, College Hill.
Arizona (Pref.) Cu	14/9 15/-	13/9	4 0	—	4 0 0	158,920	Arizona	74, Geo.-st., Edinbor
Do. 6½ A Deben.	89½ 90	85½	100 0	—	100 0 0	£135,300	Arizona	74, Geo.-st., Edinbor'
Do. 7% B Deben.	73 75	70	100 0	—	100 0 0	£181,300	Arizona	74, Geo. st. Edinbor
Big Creek .... Ay.	2/6 3/6	2/6	1 0	1/- Dec. '91	1 0 0	50,000	Nevada	2, Pancras-lane, E.C.
California .... G	—	—	0 10	-/6 May 90	0 8 9	129,571	Colorado	St. George's Ho. E.C.
Canadian Phos. P	—	—	1 0	-/6 Nov. '90	1 0 0	73,334	Canada	155, Fenchurch-st.
Colorado Boy....S	—	—	1 0	—	1 0 0	112,491	Colorado	Abchurch-chbrs, E.C
Cortez ....S	—	—	1 0	3% Feb. '93	1 0 0	300,000	Nevada	Suffolk House, E.C.
Decatur....Sl.	—	—	1 0	—	1 0 0	32,500	Colorado	35, Queen Victoria-st.
Do.... (Pref.)	—	—	1 0	—	1 0 0	12,500	Colorado	35, Queen Victoria-st
De Lamar....GS	25/6 26/6 xd	25/6	1 0	1/- Jan, '95	1 0 0	400,000	Idaho	6, Draper's-gardens.
Dickens Custer GS	-/9 1/3	1/-	1 0	—	0 19 9	420,000	Idaho	Winchester Ho. E.C
Elkhorn ....S	9/- 10/-	10/-	1 0	-/9 Dec. '94	1 0 0	175,007	Montana	6, Draper's-gardens.
Emma ....S	-/3 -/6	-/3	0 5	—	0 5 0	403,618	Utah	15, Geo-st, Mansn. Ho
Flagstaff....S	—	—	1 0	—	0 18 9	240,000	Utah	Dashwood Ho., E.C
Fisk.... G	—	—	1 0	6d May, 94	1 0 0	134,000	Colorado	5, Fenchurch st.
Garfield .. ....GS	—	—	1 0	-/6 Dec. '88	0 19 6	98,185	Nevada	Suffolk House, E.C.
Golden Feather G	7/6 8/6	8/-	1 0	—	1 0 0	180,000	California	St. Stephens Cs E.C.
Golden Gate ....G	3/- 4/-	3/-	1 0	—	0 19 6	79,600	California	St. Stephens Cs E.C.
Golden Leaf.... G	2/9 3/3	2/9	1 0	—	1 0 0	300,259	Montana	6, Draper's Gardens.
Golden Valley...G	1/3	1/3	1 0	—	0 19 0	55,507	Colorado	15, Angel Court.
Harquahala.... G	4/6 5/6	4/6	1 0	-/6 Oct., '94	1 0 0	300,000	Arizona	6, Draper's Gardens.
Holcomb Valley G	2/- 2/6	2/-	0 5	—	0 5 0	540,000	California	14, Cornhill, E.C.
Idaho....GS	3/- 3/6	3/-	0 5	-/3 Dec. 94	0 4 8	143,439	Idaho	140, Leadenhall-st
Jackson Goldfields	2/4½ 2/7½	2/4½	5 0	—	0 5 0	408,635	California	11, Poultry, E.C.
Jay Hawk (New) G	1/6 2/-	1/-	1 0	-/6 Dec. '92	0 19 3	285,000	Montana	Dashwood House,
La Plata....S	1/9 2/3	1/9	0 5	1/3 Oct. '82	0 4 8	405,000	Colorado	11, Poultry, E.C.
La Yesca ....GS	2/9 3/3	2/9	1 0	—	0 19 0	76,015	Mexico	20, Bucklersbury, EC
Maid of Erin ...S	4/6 5/6	4/6	1 0	4c.p.sh Sept'94	1 0 0	575,000	Colorado	43, Threadneedle-st.
Mammoth Gold ...	—	—	1 0	—	1 0 0	400,000	Pinal Arizona.	257, Winchester Ho.
Mesq. d'l Oro (P) G	—	—	5 0	—	5 0 0	10,000	Mexico	Dashwood Ho., E.C.
Mesq. d'l Oro (D) G	—	—	5 0	—	5 0 0	10,000	Mexico	Dashwood Ho., E.C.
Montana .... GS	12/- 13/-	12/-	1 0	-/6 Jan. '95	0 19 0	657,158	Montana	Gresham House, E.C.
New Colorado ...S	—	—	1 0	—	0 17 0	65,000	Colorado	Abchurch Cham. E.C
N. Consolidated SC	—	—	0 5	—	0 3 6	148,578	Nevada	15, Angel-court, E.C
N. Gold Hill....G	-/3 -/6	-/3	1 0	—	0 19 9	191,045	N. Carolina	15, George-st., E.C.
New Guston ....S	10/- 12/6	10/	1 0	1/- Oct. '92	1 0 0	110,000	Colorado	25A, Old Broad-st.
New Hoover Hill G	-/3 -/6	-/3	0 10	-/9 Dec. '85	0 10 0	120,000	N. Carolina	Langthorne Ho., E.C.
Palmarejo ....GS	-/9 1/3	/9	1 0	—	1 0 0	418,888	Mexico	4, Copthall-buildings
PinosAltos(Df) GS	5/- 6/-	5/	1 0	-/6 Mar.' 90	1 0 0	100,000	Mexico	110, Cannon-street.
Do. 15% Cum Pref	—	—	1 0	—	1 0 0	60,000	Mexico	110, Cannon street.
Pittsbg Con. (N) G	—	6/1	1 0	1/6 Mar. '88	0 19 0	77,147	Nevada	Suffolk House, E.C
Poorman Con. GS	1/6 2/-	1,9	0 5	—	0 5 0	273,948	Idaho	9, Copthall-bldgs. E.C
Red Mountain ...S	—	—	1 0	—	1 0 0	46,686	Colorado	11, Poultry, E.C.
Richmond ...GSL	8/9 11/3	8/9	5 0	1/- Nov. '94	5 0 0	54,000	Nevada	44, Coleman-street.
Ruby ....GSL	—	—	0 5	—	0 5 0	221,371	Nevada	22 St. Mary Axe.
Sierra Buttes ...G	10/- 12/-	10/-	2 0	-/6 Oct. '94	2 0 0	122,500	California	138, Leadenhall-st.
Do. Plumas Eur. G	12/6 15/-	12/6	2 0	-/9 Oct. '94	2 0 0	140,265	California	138, Leadenhall-st.
Springdale....G	2/3 2/9 xd	2/3	$1	2d Aug., 94	$1	1,000,000	Colorado	20, Abchurch Lane.
Twin Lake Placers	1⅛ 1¼ xd	1⅛	1 0	3/- Feb. '95	1 0 0	26,000	Colorado	3, Lawrence P. Hl. E.C
United Mexican S	—	—	1 0	2/6 May, '87	1 0 0	906,654	Mexico	3, Gt. Winchester-st.

SOUTH AND CENTRAL AMERICAN MINES.

Name.	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend.	Called up per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Anglo-Chilian Pf. N	8 8½	8	10 0	4/5 Dec, '89	10 0 0	35,000	Antofagasta	123, Bishops.-st. W.
Do. 6% RylstMB	99 101	99	100 0	6% Jan., '95	100 0 0	£200,000	Antofagasta	123, Bishops.st. W.
Antio. (Pref.) G.S.	—	—	1 0	-/6 Mar. '90	1 0 0	22,880	Colombia	184, Gresham Ho.
Antioquia (ordiny)	—	—	1 0	—	1 0 0	42,453	Colombia	184, Gresham Ho.
Caratal.... G	1/1½ 1/4½	1/1½	2/6	—	0 2 6	1,330,000	Venezuela	57, Moorgate-st. E.C
Caylloma ....S	1⅛ 1¼	1⅛	2 0	1/- Apr. 94	2 0 0	125,000	Peru	52, Leadenhall street
Colon .... G	-/9 1/3	-/6	0 5	—	0 4 0	200,000	Colombia	5, Copthall-bdgs., E.C.
Colorado Nit. ...N	2⅝ 3	2¾	5 0	6% Nov., '94	5 0 0	32,000	Chili	12, King-st., Liverp'l.
Colombia.... ....G	—	—	20 0	10 frs. Aug. 94	20 0 0	—	Venezuela	Ciudad Bolivar.
Colombian Hy.. G	11/- 12/-	11/6	1 0	1/- Sept. '94	1 0 0	75,000	Colombia	10, Blomfield-street.
Copiapo C	1⅝ 1⅞	1 9/16	2 0	1/- Dec. '94	2 0 0	100,000	Chili	Dashwood House, E.C
Darien "A" ....G	2 13/16 2⅞	2⅝	1 0	—	1 0 0	49,553	Colombia	Manchester.
Don Pedro.. ....G	5/6 6/6	6/-	1 0	—	0 18 6	133,102	Brazil	24-5, Devonsh. Cs E.C
El Callao ....G	7/6 12/6	7/6	5 0	9½d Feb. '94	5 0 0	257,600	Venezuela	8, Bishopsgt.-st, W.
Frontino & B....G	1⅜ 1¼	1 5/16	1 0	1/- Mar. '95	1 0 0	128,662	Colombia	184, Gresham House
Glenrock ....G	1/3 1/9	1/3	1 0	—	1 0 0	199,948	Argen. (& Ind)	3-5, Queen-street, E.C
Gravel ....G	3/6 4/6	3/6	1 0	—	0 18 6	100,000	Colombia	10, Blomfield-street
Guadalupe ....GS	3/6 5/-	3/6	1 0	—	1 0 0	120,000	Honduras	11A, Unionct. Old Brdst
Huanchaca ....S	—	—	5 0	4/- Sept. '94	5 0 0	320,000	Bolivia	10, Avnu. d'Alma, Paris
Javali ....G	-/6 1/6	-/6	0 2	8½ % '91	0 2 0	105,234	Nicaragua	139, Cannon-street.
Julia Taltal ....N	11/16 15/16	¾	1 0	—	1 0 0	200,000	Chili	79½, Gracechurch-st.
Lagunas ....N	6 6¼	5¾	5 0	15p.c. Dec. '94	5 0 0	120,000	Tarapaca	3, Gracechurch st.
Lautaro ....N	8 8½	8	5 0	7/6 Dec. 94	5 0 0	110,000	Chili	70, Gracechurch st.
Liverpool ....N	11 12	11	5 0	10 p c Dec. 94	5 0 0	22,000	Chili	Liverpool.
Loma ....G	-/6 1/-	-/6	1 0	—	1 0 0	300,000	Colombia	5, Copthall-buildings
London Nit....N	1⅜ 2¼	1⅜	3 0	3/4¾ Nov. '89	5 0 0	10,000	Chili	9, Gracechurch-st
LondonNit. (Pref.)	3¾ 4¼	4	5 0	8% Nov. '94	5 0 0	22,000	Chili	9, Gracechurch-st.
Macate	3/- 3/6	3/3	0 2	—	0 2 0	200,000	Peru	11, Old Broad-st, E.C
New Tamarugal N	⅜ ⅝	⅜	1 10	1s. Dec. '94	1 10 0	130,000	Tarapaca	50, Lime-street, E.C
Do. 8 % Cum Pref	15/16 1 1/16	15/16	1 10	8 p.c. Feb. '95	1 10 0	130,000	Tarapaca	50, Lime-street, E.C
Do. 6 p.c. Debs ...	86 89	86	100 0	6 p.c. Feb. '95	100 0 0	£260,000	Tarapaca	50, Lime-street, E.C
Orita ....G	1/- 1/6	1/-	1 0	1/- April '89	1 0 0	30,000	Colombia	10, Blomfield-street.
Ouro Preto ....G	—	—	1 0	—	1 0 0	80,000	Brazil	6, Queen-street-place
Pac. & Jazpampa N	4⅛ 5	4¼	5 0	5/- Aug. '94	5 0 0	72,000	Tarapaca	3, Gracechurch-st.
Primitiva ....N	1⅞ 2¼	1⅜	5 0	20% Oct. '89	5 0 0	40,000	Chili	Liverpool.
Quebrada C	3/- 5/-	3/-	3 0	5% Mar. '92	3 0 0	241,956	Venezuela	38, Nicholas Lane.
Quebrada C	—	—	8 k.	6% Feb., 94	100 0 0	£400,000	Venezuela	38, Nicholas Lane.
Rosario ....N	5⅛ 5⅜ xd	5¼	5 0	7/6 Feb. '95	5 0 0	120,000	Chili	57½, Old Broad-street
Rosario (6% Deb.)	105 107	105	100 0	6% Oct. '94	100 0 0	£475,000	Chili	57½, Old Broad-street
St. John del Rey G	26/- 27/-	26/6	1 0	10% June '82	1 0 0	284,200	Brazil	Finsby. Ho., Blmf'dst
San Donato ... ..N	2¼ 2⅜	2¼	5 0	—	5 0 0	32,000	Chili	12, King-st., Liverp'
San Jorge ....N	5⅝ 6	5⅝	5 0	7/6 Sept. '94	5 0 0	75,000	Chili	9, Gracechurch-st.
San Pablo ....N	3 3½	3	5 0	2½% Nov., '94	5 0	32,000	Chili	Gracechurch-st

"THE MINING JOURNAL" SHARE LIST—(Continued).

SOUTH AND CENTRAL AMERICAN MINES—(*Continued*).

Name.	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
			£ s.		£ s. d.			
Santa Barbara ...*G*	—	—	0 10	1/3 Dec. '88	0 10 0	60,000	Brazil	Liverpool
Santa Elena ...*N*	⅜ 1	⅜	5 0	5/- Oct. '94	5 0 0	22,000	Tarapaca	3, Gracechurch-st.
Santa Rita ...*N*	4¾ 4⅜	3⅜	5 0	15% Apr., '94	5 0 0	20,000	Chili	DashwoodHouse,E.C
San Sebastian ...*N*	2⅝ 2⅞	2¾	5 0	5/- Dec.,'94	5 0 0	29,000	Chili	DashwoodHouse,E.C
Segovia ...*G*	—	—	5 0	—	0 4 0	160,000	Colombia	5, Copthall-buildings
Sucre Pref. ...*G*	—	—	1 0	10% Dec. '94	0 15 0	840	Colombia	23, St. Swithin's ln.
Sucre Ord. ...*G*	—	—	1 0	6% Dec. '94	1 0 0	10,000	Colombia	23, St. Swithin's ln.
Tetuan ...*G*	—	—	1 0	—	0 19 6	200,000	Colombia	5, Copthall-buildings
Tolima "A" ...*S*	6¾ 7¼ xd	6¾	5 0	10/- Dec., '94	5 0 0	14,000	Colombia	18, Finsbury-circus.
Do. "B" ...*S*	6 6½ xd	6	5 0	10/- Dec.,'94	5 0 0	6 000	Colombia	18, Finsbury-circus.
Vic. & Altamira ...	1/9 2/3	1/3	0 5	—	0 5 0	200,000	Venezuela	Broad-st. Avenue.
West Indian ...*G*	—	—	0 5	—	0 5 0	700,000	San Domingo	49, Queen Victoria-st
Zaruma ...*G*	—	—	0 5	—	0 5 0	261,422	Ecuador	1, Gt. Winchester-st

AFRICAN MINES.

Name.	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
African Coal ...	7/- 7/6	6/9	1 0	—	0 16 6	—	—	—
African Gold Con.	4/6 5/6	7/	0 10	20 p.c. Jan.'95	0 8 0	300,000	—	16, Tokenhouse-yard
Afrikander ... *G*	1⅛ 1⅜	1⅛	1 0	—	1 0 0	40,000	Transvaal	19, St. Swithin's-lan,
Agnes Block ... *G*	13/9 16/3	13/9	1 0	—	1 0 0	78,507	Transvaal	54, Old Broad-street
Alexandra Estate*G*	6/3 6/9	6/3	1 0	—	1 0 0	225,000	Witwatersrd.	Warnford Court, EC.
Anglo-French Exp.	2 1/16 2 3/16	1 15/16	5 0	10% Dec. 94	5 0 0	30,300	S. Africa	170, Winchester Ho.
Appantoo ... *G*	—	—	1 0	—	1 0 0	77,585	West Coast	Dashwood House.
Aurora ... *G*	16/- 18/-	14/-	1 0	5% Mar.'93	1 0 0	65,000	Witwatersrd.	8, Old Jewry.‡
Balkis Eersteling*G*	2/9 3/3	3/9	0 10	—	0 10 0	520,000	Transvaal	85, Gracechurch-st.
Balkis Land ...	3/3 3/9	3/9	0 10	—	0 10 0	520,000	Transvaal	85, Gracechurch-st.
Banket ... *G*	2/6 3/-	2/6	1 0	—	1 0 0	200,000	Witwatersrd.	Johannesburg.
Bantjes Reef ... *G*	2 7/16 2 9/16	2 1/16	1 0	—	1 0 0	83,000	Witwatersrd.	Warnford-court.†‡
Barrett ... *G*	9/- 10/-	9/-	0 10	—	0 9 0	207,496	De Kaap	17, Basinghall-street
Bechuanaland Exp.	32/ 33/	32/	1 0	2/- Feb. 95	1 0 0	200,000	Bechuanaland	19, St.Swithin's-lane
Block "B" Lang.	20/6 21/6	16/-	1 0	—	1 0 0	535,000	Witwatersrd.	8, Princes-st. E C.‡
Boovsen Land . *G*	2 2⅛	2	1 0	—	0 12 0	95,000	Transvaal	4, Tokenhouse-blds
Brit. S. A. Char.	43/- 44/-	42/	1 0	—	1 0 0	2,000,000	S. Africa	19, St. Swithin's-lane
Buffelsdoorn ... *G*	3 11/16 3 13/16	3 9/16	1 0	—	1 0 0	250,000	Potchefstroom	7, Lothbury.
Buluwayo Synd. ...	⅜ ¼ pm	⅜	1 0	—	1 0 0	12,000	Matabeleland	10, Helen's Place.
Cape Asbestos ...	2⅛ 2⅜	2¾	1 0	—	1 0 0	50,311	Orange River	19, St. Swithin's-lane
Cape Copper ...*C*	1⅝ 1⅛	1⅜	2 0	1/3 Dec. '94	2 0 0	300,000	Cape Colony.	9, Queen-street-place.
Do. 6% Pref. ...	2 2¼	2	2 0	1/3 Dec. '94	2 0 0	45,000	Cape Colony.	9 Queen-street-place.
Cassel Colliery ...	3¾ 4 xd	3¾	1 0	10pc Dec. '94	1 0 0	75,000	—	99, Cannon-street.
Con. Montrose ... *G*	1/- 2/-	1/-	1 0	—	0 13 6	69,000	Transvaal	15, George st. Mn. Ho.
Champ d'Or ... *G*	4¼ 4⅛	3⅞	1 0	4/- Jan. 95	1 0 0	116,016	Witwatersrd.	8, Old Jewry, E.C.
Champ d'OrDeep*G*	23/6 24/6	19/	1 0	—	1 0 0	275,000	Witwatersrd.	Fox st., Johannesbrg
Champ d'OrFrench	—	—	1 0	4/- Jan. '95	1 0 0	117,499	Witwatersrd.	8, Old Jewry, E.C.
City and Suburb.*G*	19¾ 20¼	19⅝	1 0	25% Mar.'94	1 0 0	75,000	Witwatersrd.	1, Crosby Square.‡
Coetzeestroom ...*G*	1/5 2/6	1/5	0 5	—	0 5 0	140,000	De Kaap	105, Leadenhall-street
Con. Bultfontein *D*	27/6 28/6	27/6	1 0	3½% Sept. '94	1 0 0	721,500	Griqualand W	62, Lombard-st.
Con. Deep Levels*G*	4⅝ 4⅞	4⅜	1 0	4/- June '94.	1 0 0	187,250	Transvaal	30, St. Swithin's-lane
Con. G. Fields S A.	7⅛ 7½	4	1 0	15% Nov. '94	1 0 0	1,250,000	S. Africa	8. Old Jewry.
Do. 6% Pref. ...	1 1⅜	—	1 0	—	1 0 0	1,243,999	S. Africa	8, Old Jewry.
Do. 5½% Deben. ...	109 110	108	5 0	5½ Jan. '95	5 0 0	600,000	S. Africa	8, Old Jewry.
Crœsus Deep ...	2⅝ 2¾	2⅜	1 0	—	1 0 0	250,000	—	1, Draper-gardens
Crown Reef ... *G*	10⅛ 10¾	10	1 0	25% Nov. '94	1 0 0	120,000	Witwatersrd.	120, Bishopsgt st Wn‡
De Beers Consol. *D*	21⅛ 21⅜	20¾	5 0	12/6 Jan. '95	5 0 0	789,791	Transvaal	62, Lombard-street.
Do. 5% 1st Deb. ...	108 109	108	100 0	5% Jan. '95	5 0 0	£3,500000	Transvaal	62, Lombard-street.
Do. 5½% Bul. Ob.	106½ 107½	106½	100 0	5½% Oct. '94	5 0 0	£720,100	Transvaal	62, Lombard-street.
Durban Roodept.*G*	7¾ 8	7¼	1 0	3/- Dec., '94	1 0 0	£125,000	Witwatersrd.	28, Leadenhall-bldgs
Eastleigh ... *G*	1 7/16 1 9/16	1 5/16	1 0	—	1 0 0	240,000	—	14, Sherborne-lane.
East Rand ... *G*	59/- 60/-	53/-	1 0	—	1 0 0	570,000	Witwatersrd.	170, Winchester-ho.
Evelyn ... *G*	15/16 1 1/16	11/16	1 0	10% Jan. '89	1 0 0	66,000	Witwatersrd.	28, Old Jewry, E.C.
Exploration ...	1⅛ 1¼ pm	1⅛	1 0	1/- Dec. '94	0 4 0	148,000	S. Africa	30, S. Swithin's-ln.‡
Exploring Co. ...	3⅜ 4	3⅜	1 0	25/- Feb. '94	1 0 0	69,350	S. Africa	19, S. Swithin's-ln.
Ferreira ... *G*	18 18¼	17⅝	1 0	50% Mar. '95	1 0 0	45,000	Witwatersrd.	120, Bishopsgt st. Wn‡
Forbes Reef (Nw)*G*	3/6 4/6	3/6	1 0	—	1 0 0	105,000	De Kaap	45-6, Leadenhall-st.
F. Johnson & Co. ...	17/- 18/-	17/6	1 0	—	1 0 0	200,000	Mashonaland	8, Old Jewry‡
Geldenhuis Deep*G*	8⅛ 8¼	7¾	1 0	—	1 0 0	265,000	Transvaal	30, St. Swithin's-lane.
Geldenhuis Est. *G*	6⅜ 6⅝	6⅝	1 0	10% Oct. '94	1 0 0	187,500	Witwatersrd.	120, Bishopsgt st. Wn‡
Do. Main Reef	24/- 25/-	28/	1 0	—	1 0 0	150,000	Witwatersrd.	Warnford Court, E.C
Geldenhuis South.	6/- 7/-	7/	1 0	—	—	—	Witwatersrd.	
George and May *G*	25/- 26/-	23/6	1 0	—	1 0 0	112,750	Witwatersrd.	7, Great St. Helen's,
George Goch ...*G*	2⅞ 3	2⅞	1 0	—	1 0 0	100,000	Witwatersrd	Johannesburg.
Ginsberg ...	21/6 22/6	18/6	1 0	—	1 0 0	130,000	Drietfontein	Warnford Court, E.C‡
Glencairn ... *G*	4⅛ 4⅜	4⅛	1 0	7½ pc Jan. 95	1 0 0	200,000	Witwatersrd	2, Drapers-gardens.
Gold Estates T. ... *G*	3/6 4/6	3/6	1 0	15% Dec.'89	0 10 0	130,000	Transvaal	46, Queen Victoria-st
Gld. Fis. Deep ... *G*	4¼ 4⅜	4 7/16	1 0	—	1 0 0	600,000	S. Africa	8, Old Jewry.
G. F. of Mashonld.	12/6 15/-	11/3	1 0	—	1 0 0	200,000	Mashonaland	19, St. Swithin's-ln.
G.F.Tierrad' Fuego	3/9 4/3	3/9	0 4	—	0 4 0	400,000	Mozambique	2, Tokenhouse Bldgs.
Grahamstown .. *G*	17/6 18/6	17/6	1 0	—	1 0 0	150,000	Witwatersrd.	14, Throgmorton-st.
Graskop ... *G*	2/- 2/6	2/	0 5	1½% Mar. '93.	0 5 0	400,000	Lydenburg	85, Gracechurch-st.
Griqualand W. ...*D*	7¼ 7⅛ xd	7¼	10 0	2% Sept. '94	10 0 0	105,700	Transvaal	62, Lombard-street
Guy Fawkes ... *G*	10/- 11/-	10/6	0 10	—	0 8 0	24,000	Manica	Broad-st. Avenue
Harmony (Pref) *G*	11/- 12/-	12/6	1 0	—	1 0 0	260,000	—	79½, Gracechurch-st.
Henderson's Trans	1⅛ 1⅜	1⅛	1 0	—	1 0 0	250,000	—	85, Gracechurch st.
Henry Nourse ...*G*	5⅞ 6⅛	6⅝	1 0	—	1 0 0	100,000	De Kaap	Warnford-court.
Joe's Reef ... *G*	5/6 6/6	5/6	1 0	—	1 0 0	57,404	De Kaap	21, Mincing Lane.
Johannesburg G.F	3/- 4/-	3/-	1 0	—	1 0 0	99,537	Nr. Johannesbg	31, Lombard-st., E.C.
Johannesburg Pnr	4¼ 4⅛	4⅛	1 0	12½% Nov.,'93	1 0 0	21,000	Witwatersrd.	Johannesburg.
Jubilee ... *G*	10⅜ 10⅛	9⅞	1 0	30% Dec. '94	1 0 0	30,000	Witwatersrd.	8, Old Jewry.†
Jumpers ... *G*	5⅛ 5¾	5⅜	1 0	25% Dec. '94	1 0 0	100,000	Witwatersrd.	120, Bishopsgt st, Wn‡
Kimberley ... *D*	par ⅛ pm	pr ⅛ pm	1 0	—	0 10 0	98,672	Kimberley	19, Finsbury circus.
Kimberley Rdpt. ...	1⅜ 1⅞	1⅜	1 0	—	1 0 0	125,000	Kimberley	2, Drapers-gardens.
Koffyfontein ... *D*	1 1/16 1⅜	7/6	1 0	—	0 5 0	50,000	Jacobsdaal	4, Bishopsgate street
Langlaagte Est. *G*	5 5¾ xd	4⅜	3 0	10 p.c. Mar.'95	1 0 0	467,000	Witwatersrd.	59, Holborn Viaduct;
Do. Royal	4⅛ 4⅜	4⅛	1 0	5% Sept. '93	1 0 0	100,000	Witwatersrd	2, Drapers-gardens.

AFRICAN MINES—(*Continued*)

Name.	Closing Price, Mar. 8, 1895	Closing Price, Mar. 1, 1895.	Par.	Latest Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
			£ s.		£ s. d.			
Lisbon-Berlyn ...*G*	3/9 4/3	4/9	2/6	—	0 2 6	883,233	Lydenburg	110, Cannon-street.
Lionsdale ...	6/- 7/-	8/-	1 0	—	—	—	—	85, Gracechurch-st.
London & S. A. Ex.	9¾ 10¼	9¾	0 10	25 pc Dec. '94	0 10 0	100,000	S. Africa	19, Finsbury-circus.
Luipaards Vlei Est.	14/6 15/6	14/-	1 0	6% Mar. '90	1 0 0	319,003	Witwatersrd.	Warnford-court.‡
Main Reef (New)*G*	13/6 14/6	13/-	1 0	—	0 10 0	300,000	Witwatersrd.	8, Old Jewry.
Mashon. Agency ...	1 13/16 1 15/16	1 13/16	1 0	—	1 0 0	100,000	Mashonaland	8, Old Jewry, E.C.
Massi Kessi ...	7/- 8/-	8/-	0 10	—	—	100,000	—	Broad Street Avenue
May Con. (New) *G*	2 11/16 2 13/16	2⅝	1 0	—	1 0 0	430,000	Witwatersrd.	4, Lothbury.‡
Metropolitan (N) *G*	2 1/16 2 1/16	2	1 0	—	1 0 0	75,000	Witwatersrd.	1, Crosby Square ‡
Meyer & Charl ...*G*	6¾ 7	6⅞	1 0	30% Dec., '94	1 0 0	71,697	Witwatersrd.	Warnford-court.‡
Modderfontein . *G*	11¾ 12	9¾	1 0	—	1 0 0	200,000	Witwatersrd.	Warnford-court.‡
Montrose ... *G*	⅝ ¾	⅝	1 0	3/- Feb. '90	1 0 0	70,000	De Kaap	65, New Broad-street
Moodies G.&E. ...*G*	10/- 11/-	10/6	1 0	-/4 May '90	1 0 0	240,000	De Kaap	8, Old Jewry.‡
Mozambique. ...	20/- 21/-	21/-	1 0	—	1 0 0	400,000	S. E. Africa	Broad-street House,
Namaqua ... *C*	—	—	2 0	2/6 July '91	2 0 0	194,351	Namaqualand.	34, Leadenhall-blds.
NewAurora West*G*	18/- 20/-	18/-	1 0	5% Mar., '93	—	90,000	Witwatersrd	1, Crosby Square
N.Belgium Land ...	3/- 4/-	3/	1 0	—	0 17 0	167,362	Waterberg	33, Cornhill.
New Black Reef ...	7/- 8/-	7/-	1 0	—	1 0 0	76,000	Witwatersrd.	9, King William st
New Chimes ... *G*	2⅝ 2⅞ xd	2⅝	1 0	2/- Feb., '95	1 0 0	70,000	Witwatersrd.	8, Old Jewry, E.C.
New Clewer Estate	1⅝ 1⅜	1⅛	1 0	10% Feb. '95	1 0 0	100,000	Lydenburg	120, Bishopsgt st. Wn
New Crœsus ... *G*	2⅝ 2¾	2⅝	1 0	5% Aug. '92	1 0 0	195,000	Langlaagte	4, Bishopsgt.-st. Wt.
New Edwin Bray	—	—	7 0	—	7 0 0	65,000	De Kaap	23, College Hill
New Gordon ... *D*	4/ 5/	4/	1 0	5% Dec. '89	1 0 0	560,250.	Griqualand	110, Cannon-street.
New Heriot ... *G*	9 9¼	9¼	1 0	20 p c Dec. 94	1 0 0	195,000	Witwatersrd.	1, Crosby Square.‡
New Jagersf. ... *D*	21¾ 22	20	10 0	15s. Nov., '94	10 0 0	100,000	Transvaal	5, Copthall-buildings
N. Kleinfontein *G*	4⅜ 4⅝	4⅜	1 0	12½pc Dec,'94	1 0 0	150,000	Witwatersrd.	Winchester House.
New Klerksdorp ...	8/3 8/9	7/3	0 10	—	0 8 0	—	Transvaal	110, Cannon-street.
New LouisD'Or.. *G*	2/6 3/6	3/-	1 0	—	1 0 0	100,000	Witwatersrd.	53, New Broad-stree
New Primrose ...*G*	6⅜ 6⅝	6¼	1 0	20% Dec. '94	1 0 0	230,000	Witwatersrd.	2, Draper's-gardens.
New Rand ...	1/16 dis 1/16 pm	p. ⅛ pm	1 0	—	1 0 0	110,000	—	Bartholemew-house.
New Rietfontein*G*	2¾ 3⅛	2⅞	1 0	—	1 0 0	160,000	Witwatersrd	Warnford-ct., E.C.
NewS.Augustine*D*	8/- 8/6	7/3	1 0	—	0 19 6	234,583	Griqualand W	30-1, St. Swithin's-ln
New Salisbury ...*G*	3⅜ 2⅞	3⅝	0 10	2/- Jan. 94	0 10 0	93,000	Witwatersrd.	1, Crosby-square.‡
New Spes Bona ...*G*	32/6 33/6	34/-	1 0	—	1 0 0	113,801	Witwatersrd	24, N. John-st., L'pl
N. Ophir Concess.	2/6 3/6	2/6	1 0	—	0 18 6	111,857	E. Coast Africa	31, Lombard-street.
New Virginia ...*G*	3/9 4/3	3/9	0 10	—	0 10 0	48,335	Transvaal	26, Budge-row, E.C.
Nigel ... *G*	6 6¼	6	1 0	10% Dec. '94	1 0 0	160,000	Witwatersrd.	1, Crosby-square.
Nourse Deep ...	4⅛ 4¾	4⅛	1 0	—	1 0 0	375,000	—	120, Bishopgt.-st., Wn.
Nyassa (Bearer) ...	17/6 22/6	17/6	1 0	—	1 0 0	—	Mozambique	Bartholemew House
Oceana ...	2 2¼	2⅛	1 0	25/- Nov.'89	1 0 0	326,000	Transvaal	4, Sun Court, E C
Oceana Develpmnt	1⅜ 1⅛	1 1/16	1 0	—	1 0 0	50,000	Transvaal	4 Sun Court, E.C
Orange F.S.E. ...*D*	5½ 5¾	4¼	1 0	1/- Sept., '94	1 0 0	284,000	OrangeF.State	10, Moorgate-street.
Orion ... *G*	4⅛ 4⅜	4¼	1 0	10% Mar. '95	1 0 0	30,000	Witwatersrd.	8, Old Jewry.
Otto's Kopje ... *D*	6/- 6/6	5/9	1 0	—	1 0 0	437,888	Kimberley	110, Cannon-st., E.C.
Paarl Central ... *G*	29/- 30/-	26/6	1 0	—	1 0 0	138,750	Transvaal	120, Bishopsgt st, Wn‡
Pardy's Mozambq.	2⅜ 2⅛	3⅛	0 10	1/- Jan. 95	0 10 0	13,000	S. E. Africa	Broad St. Avenue.
Piggs Peak, New *G*	9/- 10/-	7/-	1 0	—	0 17 0	230,326	Swaziland	6, Queen-street-place
Potchefstroom ... *G*	7/- 8/-	7/-	1 0	—	1 0 0	161,000	Potchefstroom	19, Bury-st., E.C.
President Land ...	5/- 6/-	5/-	1 0	—	1 0 0	193,325	Transvaal	17, Basinghall Street
Princess Estate *G*	2¼ 2⅜	2 5/16	1 0	—	1 0 0	72,046	Witwatersrd.	33, Cornhill, E.C.
Randfontein ...*G*	25/6 27/6	22/6	1 0	—	1 0 0	1,916,500	Witwatersrd.	59, Holborn Viaduct.‡
Rand Mines ...*G*	26 26⅛	24¼	1 0	—	1 0 0	332,708	Witwatersrd.	120, Bishopsgt st. Wn‡
Read's Drift ...*D*	16/3 18/9	15/-	1 0	—	1 0 0	50,000	Transvaal	19, Finsbury-circus.
Robinson ...*G*	8⅞ 9⅛	8⅞	5 0	5/- Jan. '95	5 0 0	543,750	Transvaal	28, Austin Friars, E.C
Roodepoort Deep	2⅞ 3⅛	3⅛	1 0	—	1 0 0	110,000	Witwatersrd.	8, Old Jewry, E.C.
Roodepoort Un. *G*	4¾ 5 xd	4¾	1 0	10p.c.Dec. '94	1 0 0	100,000	Witwatersrd.	Warnford-court.‡
Sheba ...*G*	28/6 29/6	28/6	1 0	1/- Sept. '94	1 0 0	614,450	Lydenburg	85, Gracechurch-st.
Silati ...*G*	9/ 10/	9/-	1 0	—	0 17 6	625,000	Zoutpansberg.	4, Sun Court, E.C.
Simmer & Jack ...*G*	12⅝ 12⅞	12¾	1 0	10% Feb. '95	1 0 0	85,000	Witwatersrd.	8, Old Jewry.
S. A.Gold Trust ...	3⅜ 3⅞	3⅝	1 0	6/6 Jan. '95	1 0 0	220,000	South Africa.	8, Old Jewry.
Southern Land ...	5/- 6/-	5/-	1 0	—	0 15 0	20,000	Griqld. W. &	19, St. Swithin's-ln.
Southern Land ...	8/6 9/6	8/6	1 0	—	1 0 0	20,000	Brit. Bech	19, St. Swithin's-ln.
South West Rand	1 5/16 1 7/16	1¼	1 0	—	—	—	—	
Spitzkop (New) *G*	13/6 14/6	14/6	1 0	—	1 0 0	99,070	Lydenburg	15, Bishopsgt-st, Wt
Stanhope ...*G*	2⅛ 2⅜	2⅛	1 0	20% Jan. '95	1 0 0	34,000	Witwatersrd.	1, Crosby Square.‡
Sutherland R. ...*G*	21/ 22/	22/6	1 0	—	0 19 6	220,000	Zoutpansberg.	Dashwood Ho.
Teutonia ...*G*	—	—	1 0	—	1 0 0	96,000	Witwatersrd.	8, Old Jewry.
Thistle Reef ... *G*	-/6 1/-	6	0 5	—	0 5 0	150,000	Barberton	15, Angel-court, E C
Trans. Coal Trust ...	1 13/16 1 15/16	1⅝	1 0	1/- Sept. '94	1 0 0	439,965	Witwatersrd.	Broad-st, House, E.C
Trans. Est. & Dev.	15/6 16/6	15/6	1 0	—	1 0 0	285,700	Transvaal	76, OldBroad-st. E.C.
Trans.Gold Exp.*G*	3⅝ 3¾	3 5/16	1 0	1/- Jan. '95	1 0 0	250,000	Transvaal	Suffolk House, E.C.
Trans. Land ...	6/- 7/-	6/	1 0	—	1 0 0	79,915	Transvaal	Suffolk House, E.C.
Trans. Land ...	3/6 4/6	3/6	1 0	—	0 15 0	169,999	Transvaal	33, Cornhill.
Treasury ...*G*	—	—	1 0	12½% Sep.'94	1 0 0	26,000	Witwatersrd.	Johannesburg.
Turffontein Est. ...	—	—	1 0	2½ Nov. 94	1 0 0	40,007	So. Africa	130, Winchester Ho.
Un. Ivy Reef ...*G*	1 1⅛	1	1 0	3⅜ Jan. '94	1 0 0	45,000	Transvaal	110, Cannon-street
U. Langlaagte(N)*G*	2 7/16 2 9/16	2 7/16	1 0	—	1 0 0	100,000	Witwatersrd.	23, St. Swithin's-ln.
United Pioneer ...	22/6 23/6	22/6	1 0	—	1 0 0	75,000	—	18, S.Helen's-pl, E.C.
Van Ryn ... *G*	5¼ 5⅛	5¾	1 0	—	1 0 0	99,810	Witwatersrd.	1, Crosby-square.‡
Village Main Reef	5⅜ 5⅝	5⅛	1 0	—	1 0 0	132,000	Witwatersrd.	8, Old Jewry.
Wassau ...*G*	—	—	1 0	—	1 0 0	100,000	Gold Coast	147, Cannon-street.
Wemmer ...*G*	8⅝ 8¾	8⅝	1 0	10% Nov. '91	1 0 0	55,000	Witwatersrd.	19, Bury-street.‡†
Willoughby's Con.	1¼ 1⅜	1¼	1 0	—	1 0 0	700,000	Mashonaland	3, Copthall-bldgs.
Witwatersrand *G*	4⅛ 4⅜	3⅞	1 0	—	1 0 0	250,000	Witwatersrd.	19, Bury-st., E.C.
Wolhuter ...*G*	7⅛ 7⅜	7	1 0	10 p'c Apr., '94	1 0 0	120,000	Witwatersrd.	Warnford-court.†
Wolverand ...*G*	5/16 5/16	5/16	1 0	2/- Apr., '94	1 0 0	18,750	Transvaal	Blomfield House.
Wolverand ...*G*	—	—	1 0	—	0 18 0	39,021	Transvaal	Blomfield House.
Worcester ...*G*	4⅛ 4⅜ xd	4⅛	1 0	20% Jan. '95	1 0 0	90,727	Witwatersrd.	8, Old Jewry.‡
Zambesia Explora.	2⅞ 3⅛	2⅝	1 0	—	1 0 0	45,000	Transvaal	13, George-st., E.C.

PROVINCIAL SHARE MARKETS.

THE CORNISH MINE SHARE MARKET.

MR. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of March 7, (4 o'clock) as follows:—We have had a dull market this week with but little business doing. There is practically nothing doing to-day. Following are quotations:—Blue Hills, 1s. to 3s.; Carn Brea, ½ to ¼; Cook's Kitchen, 1 to 1⅛; Dolcoath, 33 to 34; East Pool, 4½ to 5; Killifreth, 13s. to 15s.; South Condurrow, ⅛ to ¼; South Crofty, ⅛ to ¼; Tincroft, 4½ to 5; West Kitty, 5⅛ to 5⅝; Wheal Agar, ⅛ to ¼; Wheal Basset, ½ to 1; Wheal Grenville, 10 to 10½; Polberro, ⅛ to ¼.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (March 7) as follows:—The mining market is a shade firmer on the steady appearance of tin and reduction of stocks for the past month, but prices are without any improvements. Closing prices:—Blue Hills, 3s. to 4s. c.p.; Carn Brea, ½ to ⅝; Cook's Kitchen, 1 to 1⅛; Devon Consols, 1½ to 1⅝; Dolcoath, 34 to 34½; Drakewalls, 3s. to 4s.; East Pool, 4⅞ to 5; Killifreth, 15s. to 16s. 6d.; Levant, 4⅞ to 5; Polberro, 15s. to 16s. 6d.; South Crofty, 6s. to 7s. 6d.; South Frances, 6s. to 7s. 6d.; Tincroft, 4⅞ to 5; West Kitty, 5 to 5½; Wheal Agar, 6s. to 7s. 6d.; Wheal Basset, ⅝ to ⅞; Wheal Grenville, 10 to 10½.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of Thursday, March 7:—Business in the Cornish share market is still on a limited scale. A fair amount of dealing in Dolcoath, which, however, close lower, and some demand for East Pools and Tincrofts, have been the chief features, quotations in most other instances being more or less nominal:—Blue Hills, ⅛ to ¼; Carn Brea, ½ to ⅝; Cook's Kitchen, ⅞ to 1⅛; Dolcoath, 33 to 34; East Pool, 4⅞ to 5; Killifreth, ⅝ to ⅞; Polberro, ⅛ to ¼; South Condurrow, ⅛ to ¼; South Crofty, ⅛ to ¼; Tincroft, 4½ to 4⅞; West Frances, ⅛ to ¼; West Kitty, 4⅞ to 5½; Wheal Agar, ⅛ to ¼; Wheal Basset, ½ to 1; Wheal Grenville, 9½ to 10½; Wheal Kitty, ⅛ to ¼ Tin, 60.

MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write March 7 (noon):—In railway markets there are a few instances where better prices are marked than obtained a week ago, but they are few, and stand out as exceptional against a large majority of changes of an adverse character. In home rails the balance of changes on the lower side is not so large as in some other departments, neither are the declines on the whole of much amount. Americans, too, are somewhat irregular, with Central Pacific a distinct exception with rise of $1½. In Canadians fall is all there is to note, Canadian Pacifics being $4½ further, and one or two of the Trunk Priority issues well over 1 down. In Americans, beyond the rise in Central Pacifics just named, the falls of $⅞ in Louisville and New York Central, alterations are expressed in small fractions of a dollar. Daily movements in rails, &c., as follows: On Friday, the 1st inst., home rails were better for the most part, but exceptions were found in Midlands and Brighton A, both of which fell over 1 on the day. Americans were a weak market nearly all day, but just at the finish of business tone and prices improved. In Canadians, Pacifics fell about $½, but Trunk issues firmed a little on their statement for January last, Mexican rails easier. Saturday was a quiet day all round. Home rails, except here and there, maintained previous day's figures, Canadian Pacifics again the turn easier, and Trunk issues unaltered in quotations, without business, however, in either sort. Mexicans also without business, weaker; Americans began lower, and being short of business they eased, with, however, no distinct pressure down to close. On Monday, home rails were unaltered, and except for a few markings in Caley Deferred hardly any business doing. The Caley dividend, 3¼ against 4⅞, was about anticipations (though rather more than some had expected, their estimate being 3), and did not affect theirs or other prices to any extent. In Canadians, Trunks held up pretty well, but Pacifics had a fresh fall away to the amount of over $1. Americans were flat, Louisvilles, which furnished almost the whole of the business done, being prominent amongst the declines. Mexicans mended a bit, though no dealings were registered. Ship Canal shares developed weakness again, and some low prices were established; ordinary at the last, however, were a bit above the lowest of the day. On Tuesday, home rails eased about, all along the list, declines, however, did not reach much amount in any case. Americans mended to-day. A fair number of dealings were marked, and prices advanced in range from $⅛ to $1. Canadians poor market again, and Pacifics again lower. The Mexican Rail traffic—£1700 increase—kept their prices steady. Yesterday, notwithstanding an array of decreases, home rails maintained previous figures fairly well. Americans were a bit on the better side. Canadians rather easier all round. Ship Canals a feature to-day, showing a complete reversal of the movement of yesterday. This morning home rails opened same as last night's close, save for ⅛ change here and there, and these contradictory. Americans all opened more or less lower, as also did all Canadians. Consols, taking into account, that they are now ex div., show a rose of ⅝ on the week. Colonials quiet, and the only change marked here is a rise of ⅛ in Victoria Railwae Inscribed. Home corporation stocks quiet also. Bristol Three and a-Half per Cent. is 1, and Manchester Three per Cent. ⅛ to ⅛ up, and there are no other changes in current quotations. Foreigners irregular.—Higher: Mexican Six per Cent, ⅞ to 1⅛, Egypt Unified, ⅛, and Portuguese Three per Cent., and one or two Turkish issues ⅛ each.—Lower: Uruguay Three and a-Half per Cent. 1, Argentine Five per Cent. ½, Brazilian Four per Cent. ⅛ to ⅜, Italian Rentes ⅛, and Spanish Four per Cent. ⅛. In miscellaneous sections the aggregate of transactions is but very moderate, Ship Canals chiefly, and to a less extent, London and Midland Banks furnishing the bulk of the dealings recorded. Quotations are altered to a fair extent, with results varying in the several departments.

BANKS.—Little doing save in London and Midlands, which have changed hands repeatedly.—Higher: Imperial Ottoman ⅜, Bank of Liverpool ½, and Parrs, &c., ½.—Lower: Manchester and County ⅛, Mercantile of Lancashire 1-16 to ⅛, and Consolidated 1-16.

INSURANCE very quiet. There is one instance of advance—viz., Sea 1-16, but the rest of the changes (fairly numerous) are on the downward side, none, however, being particularly notable in amount.

COAL, IRON, &C.—Hardly anything done. Bolckow ordinary issues are fractionally better, otherwise prices, where altered, are lower, Ebbw Vales being ⅜ down.

MINES better in nearly all cases of those quoted here. Not much doing here in them, however, though transactions on "unlisted" shares have been fairly numerous.

TELEGRAPHS, &C.—One or two Anglo issues better. Constructions 2 lower. National Telephone ordinary, in which several dealings are marked, are 1-16 down.

COTTON SPINNING, &C., very dull, and prices lower where tested by actual business.

BREWERIES.—Little doing.—Higher: Allsopps 1 to 1½, Rochdale and Oldham 1, and Tamplins ½.—Lower: Threlfalls ½, and Manchester ordinary ⅛.

MISCELLANEOUS.—Very little doing save in Ship Canal issues. These have fluctuated considerably, but on balance for the week only the ordinary show change, and that a fall of 1-16.

LATER (4 P.M.).—Canadians have been very depressed to-day, and have communicated this feeling to all sections of rails. Home rails are from ⅛ to ⅜, and Canadians from ¼ to 2⅜ down. Ship Canals about steady.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (March 7), writes:—During the past week there has not been so much business doing. An improvement in the weather would no doubt be followed by more activity in the markets. Briskness in the markets generally is nft likely to set in until the metal markets improve.

In shares of coal, iron and steel companies prices are steady. Marbella declined to 44s. on the meeting, and are now 45s. It appears the mines are at a stand owing to a misunderstanding with the Spanish authorities. The company is not likely to do much good until this can be arranged, and likewise better prices got for the output. The Stewart and Clydesdale dividend is announced at 3 per cent., comparing with 6 per cent. last year. African Coal shares are at 7s., Niddrie, 43s. 3d., and Steel Company of Scotland 37s.

In shares of copper concerns busi continues quiet. Arizona

improved to 15s. 6d., on statements that a dividend had been earned. Copiapo are at 33s. Tharsis and Tinto show little alteration.

In shares of gold and silver mines a fair amount of business has been done in South Africans, which are assisted by Continental dealings. Montana improved from 12s. 4½d. to 14s. 1½d., and are now 13s. 3d.; last month's output shows a profit of $15,240. The crushing returns both from India and South Africa, last month, are coming out satisfactorily. That of the May Consolidated, 4145 ounces, compares with 3584 ounces in January. Langlaagte Estate advanced, as to the number of stamps is to be increased to 250. It will be the largest mill in South Africa. Balkis Eersteling and Lisbon are both flat. Great Gold Zone and Zwartland Transvaal wanted. Westralian Premier offered. Broken Hill have been very much dealt in and only varied from 36s. to 37s. Associated Gold Mines of Australia, 7s. 6d. dis.; African Concession, 6s. 9d.; African Recovery, 26s. 9d.; African Land, 3s. 9d.; Buffelsdoorn, 75s.; Bonnie Dundee, 16s.; Cæsus, 56s. 3d.; Cassidy Hill, 7s. 6d. to 10s.; Cassels, 13s. 9d.; Caratal, 1s. 4½d.; Coolgardie (Sheriaw's), 19s.; Day Dawn Block, 12s.; East Rand, 58s. 6d.; Eastleigh, 30s.; Graskop, 2s. 6d.; Guadalcazar, 3s. 6d.; Guy Fawkes, 12s. 6d.; Geldenhuis Main, 26s.; Geldenhuis Southern, 7s.; Holcomb, 2s. 6d.; Hauraki, 4s.; Johannesburg Consolidated Investment, 56s. 3d.; Kaboonga, 3s.; Klerksdorp, 8s. 9d.; Knight's, 76s. 3d.; Londonderry, 24s.; Luipaards Vlei, 14s. 3d.; Lower Roodepoort, 5s. 9d.; Lindsay, 21s.; La Plata, 2s. 1½d.; Mallina, 21s. 3d.; Matabele Reef, 28s. 9d.; New Virginia, 4s. 6d.; New Queen, 7s. 6d.; Nigel Deep, 42s. 6d.; Orion, 87s. 6d.; Otto's Kopje, 6s. 6d.; Pearl Central, 29s. 6d.; Primrose, 6 9-16; Randfontein, 28s. 3d.; Roodepoort Deep, 62s. 6d.; Sutherland Reef, 23s.; Sheba, 28s. 3d.; St. Augustine, 7s. 9d.; Silver King, 2s. 6d.; Van Ryn, 5⅝; Victoria and Alhamira, 2s. 3d.; Willoughby Consolidated, 27s. 6d.; Wemmer, 8⅜; and Wolhuter, 7½.

In shares of miscellaneous companies prices are steady. In oil companies Broxburn are at 9½, Linlithgow 27s., and Young's 32s. 6d. Lawe's chemical are at 7½, Spiel's Petroleum 10s., and White Lead 4s.

EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of March 7: Business during the past week has been quiet, and in railway stocks there has been very little change. Highland Railway has advanced ½. Glasgow and South-Western has receded 1⅜, North British 9-16. Canadians have had a further heavy fall; Americans better. British Linen Bank stock has declined from 380 to 379½, Royal from 224 to 222½, National from 336 to 335, Clydesdale from 19¼ to 19 1-16. Commercial of Australia Preference have improved from 31s. 9d. to 33s. Insurance shares lower. Caledonian have receded from 30⅜ to 30. North British and Mercantile from 39½ to 39, Royal from 51⅝ to 51½. Northern have improved from 69½ to 69¾. Scottish American Investment shares have declined from 70s. 9d. to 68s. Scottish American Mortgage have improved from 52s. 6d. to 54s. 6d. Scottish Reversionary have improved from 7⅛ to 7¾. Coal shares firm. Lothian Preference 15s. higher at 9¾. Wemys Preference 7s. 6d. higher at 13. Arizona Copper 1s. 3d. higher at 15s. In oils, Broxburn have declined from 9⅛ to 9 7-16, Hamond from 1s. 3d. to 1s., Young's from 35s. 6d. to 33s. Distillers 2s. 6d. higher at 17⅛. Edinburgh United Breweries 1s. 3d. lower at 7. New Zealand and Australian Land 20s. lower at 85. Swan Land and Cattle 2s. higher at 12s. Nobel Warrants 2s. 6d. up at 15½.

THE COVADONGA MANGANESE DISTRICT AND ITS MINES.*

BY J. A. JONES.

COVADONGA is situated nearly at the foot of the Picos de Europa, in the Cantabrian mountain chain. It is 287 metres above sea level. The limestone ranges ascend behind it in abrupt precipitous peaks, with interlying valleys, culminating in Peña Santa 2520 metres, and Picos de Cornion 2580 metres above the sea. They are horizontally distant from Covadonga 12¼ miles. A straight line drawn between this and these peaks passes over the manganese deposits. Communication with the outside world is effected by a Government road in a splendid state of conservation. Securing sure-footed horses, or the humbler ass, or mule, one starts up the mountains by a bridle path made more than 20 years ago by the workers of the manganese deposits. At a height of 1000 metres we come to Lake Enol; we continue on our way a kilometre farther, and arrive at the manganese mines.

The manganese in this district was discovered over 20 years ago. Large boulders of it were seen lying entrapped between the serrated outcrops of the limestone ranges, where they had rested in their downward courses from higher altitudes. These were soon turned to account, the broken-up stuff being transported on the backs of men, women, and children, down to Covadonga, from whence it was taken on donkeys to Rivadesella, the shipping port, as at that time there were no Government roads, and the country roads were not passable for carts. After these isolated blocks had been exhausted, search over the surface at the foot of the limestone outcrops yielded a further quantity, and open-cast working on a small scale followed. The ore was taken down on donkeys at a cost of a little over 25 pesetas per ton, the donkey load being 2 cwts. The Government roads were also opened for traffic, so that when the ore reached Covadonga it was loaded into carts, each cart taking 50 cwts., and by a yoke of oxen drawn to Rivadesella, 18 miles distant, where it was shipped.

The workings were capriciously placed, without any trouble being taken to secure drainage, so that at the close of the working season the rains filled them, and they caved in. At the commencement of work the next season, water, clay, mud, and boulders had to be cleared out before the manganese was touched. This system was continued up to 1892 with profitable results at first, owing to the high prices obtained for this ore; but for the last few years, although yielding a profit that would be called excellent, if worked on a large scale, it was not considered sufficient to satisfy the then owner of the mines, and he had not the necessary capital to open them out in proper form. In view of this, he came to the conclusion that it would be better for him to cede the mines to stronger people, and this at length he did to a London gentleman, and the Asturiana (Limited), was formed, to thoroughly prove the existence of the manganese in quantity, its quality throughout, and the feasibility of working and exporting it at a paying rate. Borings were made, and a number of trial pits sunk by this company over a portion of the area, the results of which are given below.

When the ore was first discovered no endeavour was made to form any theory as to its mode of occurrence, or why the isolated blocks were met with in such positions. Engineers and others went to examine the ground, but although they could see that these boulders did not fit in with the obsolete theory of "all mineral masses and lodes owing their origin to plutonic action," they could account for this in no other way. The former owner always insisted that he was working on the crown of a strong lode. An examination of the district by the writer in 1892 led to the conclusion that the manganese was the effect of glacial action, and, therefore, the ore was not confined to one narrow limit, but spread over the whole of the flat ground between the limestone ranges. This theory has been amply confirmed by the subsequent borings. The open sections of the workings that had up to that date been carried on, showed the overlying upper drift, or boulder clay, holding boulders in abundance, varying in size, and from a pound to a ton and more in weight. Most of these were rounded, but some were angular. They are of the same age as the country rock of the higher reaches, and are composed of limestone, calcspar, brown silicious sandstone, and shales, also occasionally small lumps of cinnabar.

According to Schulz in his "Geologia Descriptiva" of this province, these limestones are Palæozoic. The only probable strata that would be expected to withstand erosion, and still show signs of glacier action, would be the quartzites. I failed to meet with any of these croppings above the surface in my search upwards, and had almost given up the quest in despair. Down below Covadonga, however, on the roadside, there is a large erratic block of quartzite, having parallel striæ well developed on its smoothed surface. This confirmed me in my theory of a glacier deposition of the manganese covered by the boulder clay, and I determined to endeavour to follow it to its source. High up the mountains I found a clean rock fissure that had held manganese about 6 feet thick. This had been worked years before by a Belgian company, the ore being identical in quality with that of the deposits, and with the peculiarity that in it nodules of cinnabar had been found. I secured one piece from the dump of the working, and I have it still in my possession. This fissure has been followed up for a long distance, and there is no indication whatever of the ore passing insensibly into the barren material forming its walls, nor under the most careful assay can a trace of manganese be found in the limestone. This vein I look upon as the remaining portion of an extensive bed of manganese, that overlaid it at a strong angle. Disruption of the covering limestone caused by seismic action, and the sliding of this from over it, together with its decomposition under aerial and aqueous agencies, left it uncovered over a large surface, in the position in which it lay, at the time of the commencement of the glacier epoch of the Post-Pliocene.

Now, if we suppose these high table-lands and mountain sides had a bed of manganese overlying them, or a portion of them, and under this a bed of manganiferous iron ore, and silicious hematite, the *modus operandi* of the glaciers will be thoroughly comprehended; the ice year after year disintegrating the upper mass in blocks, along the lines of least resistance, started on its slow downward course until it reached the place where the thaw set it. Here it deposited its load of manganese, in the valleys lying between the limestone ridges. This went on for a term until manganese, first, then manganiferous ore and hematite, were all exhausted, when it attached the more easily decomposed limestones, carrying this down in its turn, until the glacier epoch had come to an end. The rubbing and grinding process produced clays of each class—*i.e.*, manganese clay, iron clay, and the upper boulder, composed for the most part of limestone mud and detritus.

The hematite colouring of the upper portion of the mineral deposit has given rise to the name of "Redcap," which is applied to the whole manganese stratum from the iron downwards. The whole of these valleys have manganese, but the best portion is included in the mines Asturiana, Asturiana 2, Austuriana 3, Escocia Tigre, Serrana, and Cardenal 2.

The following particulars of boreholes, for which I am indebted to Mr. A. J. Campbell, A.R.S.M., will be read with interest:—

	Thickness of Deposit Passed Through. Boulder Clay. Feet.	"Redcap" or Manganese. Feet.	Ins.	Limestone Entered.
Bore No. 1	13	24	0	Entered
„ 2	44	0	8	„
„ 3	42	23	0	„
„ 4	—	33	0	„
„ 5	11	0	8	„
„ 6	8	11	6	—
„ 7	—	8	0	—
„ 8	—	—		21 ft. in limestone.
„ 9	17	18	0	„
„ 10	25	11	6	Entered limestone
„ 11	35	58	0	—
„ 12	50	14	0	—
„ 13	50	14	0	—
„ 14	103	1	6	—
„ 15	50	14	0	—
„ 16	—	62	6	Entered limestone
„ 17	118	2	0	—
„ 18	105	6	0	—
„ 19	—	47	0	—
„ 20	94	13	0	—
„ 21	113	2	0	—

The bore-holes and workings indicate a very extensive and thick deposit of available manganese, which, from a study of all the different mining areas, I feel justified in estimating approximately at the following tonnage:—

	Tons.
Asturianas explored and proved area	534,240
Ditto, partially explored	1,256,640
Escocia	403,200
Serrana and Cardenal 2	624,960
Tigre	1,470,000
	4,289,040

It has thus been fully proved that these mines are capable of producing large quantities of ore for a very long series of years, and the transport of this to Covadonga is a matter of the first importance. A Government road from Covadonga to Lake Enol is in course of construction, but it will take years yet to complete it. When it is opened for traffic the distance along it to the mines will be about 22 kilometres, owing to its windings to avoid precipices, and its regular gradient to overcome the difference in altitude. Now the bee-line between the mines and Covadonga is 6985 metres (or 4·34 miles), and the difference in altitude is 714 metres. There is no insurmountable difficulty in the way of laying down an automatic aerial tramway—or more than one—which could carry down 100 or more tons per day. There will be no difficulty about contracting for the cartage of this quantity from Covadonga to the port of Rivadesella until such time as a metre gauge railway be constructed. Concessions for this have already been secured by some people in the country, and I am informed that the portion between Rivadesella and Arriondas will be commenced forthwith. At Rivadesella the ore can be stacked in such a place as to permit direct loading of ships and steamers of, say, 600 to 1000 tons burthen lying alongside the quay. By thus arranging the transport from the mines to the port, the output of these mines will successfully compete with that of all the other mines of the world that have been opened to the present day.

* From a paper contributed to the Institution of Mining and Metallurgy.

A NEW COAL FIELD IN IRELAND.—The Dungannon correspondent of the *Freeman's Journal* states that blasting operations have brought the sinkers at the Dungannon Collieries to the coal which had been discovered by the boring made some months ago. All obstacles have been removed, and excavations were made in the seam to the depth of 3 feet. Several tons of coal were raised to the surface. The coal was at once tested for steam and domestic purposes, and proved to be of excellent quality, and much superior to Scotch coal. It is expected that an abundant supply of the coal will be placed on the market during the month of April.

MINING IN SONORA, MEXICO.

By J. HOWARD PALMER, B.A., Oxon.

EIGHT months ago the writer had the privilege of contributing a series of articles dealing with mining in Mexico to this Journal, and in this series special notice was given to the old Spanish camps of Guanajuato, Zacatecas and Pachuca, where the ores are principally silver, and where the conditions of mining are very different from those prevailing upon the western side of the Sierra Madre. Mexico is divided as by an impassible wall into two parts, by this mountain range, and west and east have very little in common. In the old mining districts on the eastern side of the Sierra, most of the mining is done by the Mexicans themselves, without much assistance from European or American capital and enterprise; whereas in Sonora, on the western side, almost all the mines are in the hands of American companies or private individuals, and the Mexicans are simply engaged in prospecting and in earning "wages" on small workings. Sonora is a difficult place to get to from Europe or Mexico City. Starting from New York, there is a three days' railway journey to New Orleans; thence through Texas and Arizona, to the Mexican frontier at Nogales, and thence about 250 miles to Guaymas—a fair pot about half-way down the Gulf of California, where the railway ends. From the City of Mexico the journey is, perhaps, more tedious, as the route lies along the Mexican Central Railway to El Paso—about 800 miles distance; thence *via* the Southern Pacific to Nogales, the frontier town, so that, in either case, the State of Sonora is sufficiently isolated from the rest of the world.

Sonora is about 250 miles long from south to north, and about 150 miles broad from the sea to the Sierra, where lies the boundary of the State of Chihuahua. Sonora is distinctly a mining country; in fact, apart from the metals, nothing else is produced except a few oranges in the irrigation districts round Hermosillo. Being so far north the tropical rains cannot be depended upon for agriculture, and the little cattle ranching that exists is but a precarious industry.

The most curious fact about Sonora is that the State is about 100 years behind the rest of Mexico in the development of its mineral resources, partly owing to its remote and isolated position, and more especially because the whole country was, until 15 years ago, the chosen haunt of the ferocious Apaches. Now-a-days, the Apaches have been driven over the American line or exterminated by the Mexican Government (which does not believe in rosewater surgery for the ills of the body politic), and it is only in the southern part of the State that the Yaqui Indians are still giving trouble and carrying on a guerilla warfare (with considerable success, by-the-way), against the Mexican. The hostile Yaquis, however, are confined to the agricultural lands near the Yaqui river, and everywhere else life and property are perfectly secure. Further, the "tame" Yaqins provide the best mining labour that the State affords, and the hostile element will very soon disappear.

Sonora is cut up by ranges of mountains all running from north to south. These ranges are really foothills of the Sierra Madre, and their elevation varies from 1000 to 7000 feet, as one approaches the Chihuhua line going eastward. The formation is generally eruptive, porphyry predominating; but near La Barranca there is a carboniferous formation containing some very fair beds of lignite. These beds, however, seem to be too far from the railway, and of too poor a quality to compete with American coal from New Mexico and Australian coal imported at Guaymas. It seems to be a general rule throughout the American continent that the western side of the great dividing chain is more prolific in gold and silver. This rule holds in British Columbia, Oregon, and California, and Sonora is no exception. West of the Sonora Railway, which bisects the State from north to south, lies the district of Altar. This district is especially rich in alluvial gold, or "placeres," as the Mexican term goes, and were not water so scarce these "placeres" would rival the famous alluvials of California and Bendigo. As it is, there is hardly enough water to drink. The ground is excavated, passed through dry washers, and worked over and over again with fairly profitable results, but the work is done entirely by Yaqins, the proprietors being Mexicans; but even with these primitive methods the industry is profitable. There are also (as is only natural) many gold-bearing veins in this district, but the want of water and ignorance of the conditions of the country have proved very unfavourable to any foreign mining companies succeeding. There is no doubt, however, that the gold is there, in very payable quantities, too, but lack of water, costly freights, and transportation, do not make even 1 ounce ore a very attractive speculation in this district.

Nothing is really being done in Altar at present, except by Mexicans, who make a living by treating rich ore (304 ounces) in arrastras, for the water necessary to run even a 10 stamp mill is generally not to be found. The ores are mostly free milling, and the cyanide process, which (given dry crushing) requires much less water than amalgamation, ought to have an excellent scope in this part of the State. On the other side of the railway, in the district of Magdalena, the formation changes, and the rule is copper and silver, principally chlorides, copper, silver-glance, and native silver. Here again the mines are small, and there is hardly any machinery, the richer ores alone being worked, and, either reduced in the primitive Mexican furnaces, or shipped to the Denver or Pueblo smelters at rates for freight and treatment, which make any ore under 75 ounces silver per ton unprofitable to mine.

Going further south in the district of Hermosillo the ores are principally silver-lead, and although the lead in the ores makes them more valuable to the smelters the industry is much circumscribed by the want of proper concentrating machinery, and the heavy smelting charges. What is wanted in Sonora is a smelter which could obtain cheap Australian coke from Guaymas, and treat native ores on the spot. Such an establishment would confer an inestimable benefit on the State, for at the present time ores containing 40 ounces of silver and 40 per cent. of lead simply do not pay to work. With silver at 60 cents United States currency, per ounce, 40 ounce ore just pays freight and treatment charges. On the other side of the Sierra at Monterey and St. Luis Potosi, great smelters are working, and a new industry has sprung up in Mexico, principally owing to the heavy duty upon lead—1½ cent per pound—of the McKinley Bill. It is true this duty has been halved; but as the smelters give very little for lead, the miner even now does not reap much advantage from the reduction of the tariff. Further back towards the Sierra Madre there is less lead, and the silver is found in combination with antimony, zinc, &c., and here are various American companies at work, principally employing hypo-leaching, and with great success. In Sonora there is generally plenty of wood for roasting, and salt is cheap, so that ores unfit both for smelting and amalgamation can be profitably leached by hypo-sulphide with a very inexpensive plant. There are also some low grade gold deposits in the Sierra Madre, but very little has yet been done with them owing to lack of transportation and the excessively rugged character of the country. As everywhere else

in Mexico, the principal object of the miner since the old Spanish days has been to look for silver, and neglect gold; but, nowadays, there seems to be a distinct tendency to work the gold deposits by the Mexicans themselves. In the interior of Mexico the depression of silver has not been acutely felt, and wages have not risen; but here in Sonora, close to the American line, and dependent very much upon American food supplies, prices have risen, so that a simple Yaqin labourer earns as much ($1 Mexican per day) as a skilled miner in Guanajuato or Pachuca. The biggest mining camp in Sonora is that of Minas Prietas, where the ores are half silver and half gold in value, and where there are 100 stamps at work, all belonging to one American company. The ores are refractory, containing zinc, lead, and manganese in considerable quantities; but the Boss system of amalgamation extracts raw a considerable percentage of the value—about $17 United States currency, per ton. These mines, however, are close to the railway, and worked on a large scale, and, therefore, cheaply. Further south, towards Alamos, the Palmarejo Company is steadily at work upon silver ores containing a percentage of gold, which have to be roasted previous to amalgamation; but this company is the only English mining company now at work in Sonora, with the exception of the Mexican branch of the Cassel Cyanide Company, which is engaged in treating arrastra and mill tailings with considerable success in various parts of the State. On the whole it may be said that Sonora is an excellent mining country, but the trouble is that her mines want capital and enterprise to develop them, and these aids to progress can only come from without. The Mexican miner has neither the means nor the ambition to work on a large scale, and the recent conspicuous success of several American companies, both in silver and gold mining, shows that the resources of the country have only just begun to be developed. At present the mining prospects here are looking brighter, and it really seems, even with the low price of silver, that a revival of mining is on the eve of setting in throughout the State.

There are plenty of sound enterprises which only want hands and decent management to give excellent returns, but the isolated position of the country, and perhaps absolute ignorance of its whereabouts in England, have hitherto prevented any notable interest being shown in Sonora by English mining people. In conclusion, to give an idea of what is being done in Sonora, the actual figures, according to the Mexican Custom-house statistics for 1893, are:—Ore shipped, principally silver-lead, 1,437904 lbs, value $208,595 Mex. Bullion exported:—Gold, $5,460,910 Mex.; silver, $1,137,914 Mex.

These figures are certainly very much too low, but are the only ones attainable.

CORRESPONDENCE.

*** We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.*

BAYLEY'S REWARD MINE.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Some of the investors or speculators in this stock are beginning to find out that they have been in too great a hurry in area of ground to work, but there should be a large amount of buying these shares at such high prices. For a mine to be worth over half-a-million of money it should have not only a large development done. Supposing the company could have maintained its rich output of gold from the surface, and paid £8000 a month, as it did for some time, in dividends, it would have taken five years to repay the purchase at par, and very few mines in the world are worth a five years' purchase.

There is too much of the hurry-scurry in rushing shares to ridiculous prices, on the wild statements of excited enthusiasts who are not responsible for what they say, or competent to give an opinion on the value of a mine. Thus, take Bayley's Reward Mine—a remarkable discovery, no doubt, and something exceptional in the history of mining; but there have also been many other remarkable discoveries in the earlier history of mining. Now, supposing the rich shoot of gold in Bayley's Reward Mine to be 250 feet in length and 500 feet in depth, and the reef 3 feet in width, and averaging 2½ ounces of gold per ton—which is a very liberal estimate—it would give (say) about 30,000 tons of quartz, value about £300,000, from which take costs of working (say) £50,000, would leave a handsome profit on the mine of about £250,000 sterling, but not good enough to pay over half a million for the opportunity of acquiring—paying sovereigns for half-sovereigns may be very amusing for a while, but it soon sickens the operator.

The same senseless system of over-valuing of gold mines is being practised in West Australia, as before in other places. It occurred with the Indian and West African Gold Coast mines, then with Queensland and South African. The Mount Morgan was rushed to ridiculous prices of f om £12 to £15 per share or more, which meant a market price of £12,000,000 to £15,000,000, or to nearly three times its worth. Broken Hill Proprietary shares were also rushed to similar prices, and in these two companies the stock fell in market value about £20,000,000 in about two years, and yet there are the class of high priced and much over valued stocks that so many investors like to gamble in. They prefer going in at the top of the tree when there is little chance of the stock rising, instead of going in near the bedrock, when there is little chance of the stock falling in price.

It is, of course, a difficult mat ter to value a gold mine, especially with rich surface outcrops, or patches in the lodes. The best guide is a fair general average of the lode, and how can it be ascertained except by development. The value of a gold mine may be estimated at from one to five years' purchase, but a mine to be worth five years' purchase must be well opened out and showing extensive developments, with large reserves of good ore to justify the outside limit of price.

Victoria, California, and Colorado, crushing many millions of tons of ore, as also South Africa, average about ½ ounce of gold per ton. If Westralia will maintain an average of 1 ounce of gold per ton it will do well.

Of course there has been, and no doubt will be, exceptionally rich spots discovered, but investors should be cautious in not rushing after the abnormally over-valued mines. In most of the companies formed the areas of ground are much too limited for the capitals with which they are handicapped. No mine should be put on the English market as a public company with a lesser area than from 25 to 50 acres, and not less than 1500 to 2000 feet on the line of lodes. Companies starting legitimate gold mining in West Australia should commence operations with the object of going down (say) 1000 feet or more in depth. Now, take a mine (say) with an area of 50 acres and 2000 feet in line of reef, estimating the lode to hold down 1000 feet in depth, averaging 2 feet 6 inches wide, and allowing a fair margin for breaks, would give an output of about 300,000 tons of ore at 1 ounce of gold per ton, should give (say) a yield of £1,200,000 sterling, and take about 20 years to work out at the rate of 300 tons of ore per week. This output at £4 per ton value would give £60,000 a year, and allowing one-third for costs and expenses, would leave (say) a profit of £40,000 a year; or, in 20 years (say) £800,000. Supposing the company is to be capitalised at £120,000, it would have its capital returned in three years, and the stock should be worth a fair margin above par, the value would naturally vary each year according to the yield being richer or poorer; but such a mine, when well opened out, might be fairly rated at five years' purchase. The costs of management both here and in the colony is practically as much, or nearly so, for a 10 acre block as it would be for 50 or 100 acres. Under well-selected and well-managed mines, with ample capital for development, there is seldom any great loss, except where mines are injudiciously abandoned before being properly proved, and the capital extravagantly spent. I have seen and known of so much capital uselessly wasted in futile attempts at gold mining by directors and officers who did not understand how operations should be conducted, that I trust for the future more care will be taken, in the first place, to provide sufficient capital to carry through the work, and then to see it judiciously expended.

There are better opportunities for profitable investment in gold mining than in any other form of industry, if gone into as a matter of business under proper supervision. Of course, there are risks of moderate losses, as there are chances of exceptionally large profits. The losses chiefly arise from investing in much over-valued stock in mines, or by capital wasted, and mines abandoned without being thoroughly prospected. It is the amateur authorities who make audacious statements, and give opinions about the prospects of mines which they have little knowledge of, that leads so many unwary investors into loss and disappointment in mining speculation. That West Australia has a great mining future before it, there can be no doubt, and with steady development, will open up many rich and profitable gold fields, and give employment to a large population.—Yours, &c.,

THOMAS CORNISH, M.E.

54, New Broad-street, E.C.

THE LISBON-BERLYN COMPANY, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—I am instructed by my board to ask you to be good enough to allow me to state through your columns the result and effect of the decision of the Court of Appeal of the 6th inst. in the action of "The Lisbon-Berlyn Company (Limited) and Lazarus *v.* Hamilton and Others."

The action was commenced by Mr. Lazarus, claiming to do so on behalf of himself and all other shareholders. On February 1 last he obtained by way of injunction an order from Mr. Justice Kekewich restraining the old directors from proceeding on the resolutions of December 6 last.

The result of the appeal against this decision was the discharge of the injunction with costs against Mr. Lazarus of the appeal in the court below, and the company is now entitled to have the action itself dismissed with costs, and an application is now being made to the Court for this purpose.

The effect of such decision is to confirm the appointment of General Owen Williams as director, made at the meeting of December 6 last, and the appointment of Mr. Nicol Brown and Major-General A. B. Bruce, C.B., as directors made at the meeting of January 17 last.—Yours faithfully,—C. P. SIMPSON, Secretary.

110, *Cannon-street, London, E.C., March 7*, 1895.

THE UNEMPLOYED QUESTION.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—I take the liberty of suggesting whether it would not be wise for each mining district in Great Britain to draw the attention of the Unemployed Committee to the number of miners who are out of work in each, and to submit evidence as to the reasons that are leading to the collapse of British metalliferous mining. Copper mining is virtually extinct, and lead, zinc, and tin mining will certainly share the same fate unless there be an early improvement in prices, which is not likely so long as it is allowed to be prejudiced by "Bounty systems," "Protective Tariffs," and depreciated currencies abroad.

The situation is a very serious one, demanding an exhaustive enquiry and even a departure from our present fiscal policy, without detriment to the interests of the community at large, if the unfair conditions under which British metals compete with foreign can be obviated in no other way.

The writer would be glad to elicit the opinions of others interested in British metalliferous mining, and to co-operate with them in combined action, if necessary.—Yours truly,

Halkyn, Holywell, March 1, 1895. MATTHEW FRANCIS.

REPORTS FROM THE MINES.

BRITISH MINES.

COOK'S KITCHEN.—March 7: Since the meeting the increased water in the bottom has interfered with the sinking of the shaft, and we have put the shaftmen to drive the 420 west. The lode here is of a very promising character, and the last parcel from the end yielded 33 lbs. of tin to the ton. The water is now decreasing to such an extent that we hope to resume sinking this week. The lode above the 42, reported at the meeting to have improved, continues without further change. Progress made in opening up the north part of the lode at this point has been specially favourable westwards and in depth. The eastern stope below the 394 for 10 feet wide is worth £25 per fathom. There is no other change since the meeting.—Josiah Thomas, Charles Thomas, Thomas Uren.

DEVON GREAT CONSOLS.—Wm. Clemo, March 7: Watson's. The water is now down 16 feet below the 160 fathom level, and is being gradually drained to the bottom level. We have set two stopes to work during the past week. In the 148 fathom level east of the engine shaft the lode has improved, and is yielding 2 tons of copper ore per fathom. The stopes in other parts of the mines are looking well. The weather having become more favourable, our surface departments are again in full work.

DRAKEWALLS.—Moses Bawden, March 7: In crosscutting south through the lode at the 190 we have gone through the hard capel, and have a leading part of the south wall for about 6 feet wide, of much easier ground. This leading part has some rich tin ore, and promises to be very productive as opened up; altogether it has even a better appearance than when cut at the 175, and where it was reported to be yielding tin ore of good quality. The whole of the water is not yet let down or driven from the 175, but we expect that in a few days it will be, when we shall be able to proceed rapidly with the winze from the 175 to the 190. Our stopes in each level east from the 132 to the 175, on the line of junction, are looking well for arsenical mundic, and we shall quickly receive great assistance from an increased production of arsenic.

LEADHILLS.—W. H. Paull, March 4: Brown's vein, Fair progress is being made in driving the 160 fathom level north of Jeffrey's shaft on vein 4 feet wide, which has during the past week produced some good saving work at times, present end valued at 5 cwts. of ore per fathom. The same level south of Wilson's shaft is going forward at a fair rate, vein 4 feet wide, showing a little spar, but still unproductive, and rather dry in character. In the stope over this level south of Jeffrey's shaft the vein is worth 20 cwts. of ore per fathom. Nos. 2, 3, and 4 stopes over the 145 fathom level north of Jeffrey's shaft are each producing 30 cwts. of ore per fathom. The vein in the 115 fathom level south of old stope over the 130 is large, and the portion carried yields 60 cwts. of ore per fathom. In same level driving north of Jeffrey's shaft the vein is 4 feet wide, carrying a good branch of kindly spar, but as yet contains no ore to value. The vein in the 100 fathom level going south of Wilson's shaft contains a good mixture of spar and stone harder than of late. There is no perceptible change in the crosscut east at the 100 fathom level south of Wilson's shaft. The rise over drift above the 100 south of Wilson's shaft on eastern portion of vein is yielding 35 cwts. of ore per fathom. The vein in the 85 fathom level driving south of Wilson's shaft continues poor. The stope over this level south of Wilson's shaft is on vein 7 feet wide, yielding 40 cwts. of ore per fathom. In stope over the 70 fathom level south of Wilson's the vein is large, now producing 35 cwts. of ore per fathom. The stope over the 50 fathom level south of flat rod shaft is yielding 30 cwts. of ore per fathom. In stope below the 35 fathom level south of same shaft the vein is worth 45 cwts. per fathom. In stope over same level south of ditto the vein will produce 30 cwts. of ore per fathom.—Sarrowcole vein, at Gripp's adit going south, continues much the same in character, and the forebreast is now very wet. The frost has been very severe since Friday, and still continues, some light showers of snow having also fallen. All things are, however, being pushed ahead as fast as possible.

PRINCE OF WALES (East Cornwall Tin Mining Syndicate.)—S. Roberts, James Pyne, March 6: The men in the 193 crosscut north are making the usual progress in driving. The nature and character of the ground is precisely the same as described last week. In the 180 north nothing is being done at present; the men are engaged in repairing the shaft, which will be completed in a day or two.

WEST KITTY.—March 7: The 108 fathom level west is worth £6 per fathom; the 94 fathom level west is worth £6 per fathom; the 84 fathom level west is worth £10 per fathom; the 60 end east south of slide £10 per fathom; the 60 end west south of slide £14 per fathom. In driving east and west at the 50 fathom level the lode is worth £7 per fathom. Our stopes and tributes pitches are about the same as reported last. We shall sell 13 tons of tin at next Tuesday's ticketing. We expect to sink 5 fathoms this month at Thomas's shaft.—Signed, Joel Hooper, John Williams.

WHEAL GRENVILLE.—March 4. The following is a short report of the mine: Goold's engine shaft. Nothing has been done in this shaft during the past month, owing to the unusually large quantity of water we have had to deal with.—Fortescue's engine shaft. We have cut the top plat at the 246 fathom level, and the shaft men are preparing to again sink for the bottom plat.—The 246 fathoms level, east of Fortescue's, is being driven by a boring machine. The lode is large and worth £20 per fathom.—The 205 fathom level east of Fortescue's. This level having been driven through a good piece of tin ground we are putting up a rise in a lode worth £25 per fathom, to secure better ventilation. There is no particular change in the other bargains, and stopes throughout the mine to note since last reported.—(Signed) Chas. T. Bishop.

COLONIAL, INDIAN, AND FOREIGN MINES.

ALAMILLOS.—Mine report dated February 27: In the 85 fathom level driving west of Taylor's engine shaft, the lode has a promising appearance. The lode in the 160 west of the same shaft is small, and of no actual value. The 100 east of Judd's engine shaft is still going through a hard bar of ground. The stopes continue to yield well. The works at surface are kept on with regularity, and the machinery is in good working order. Estimated raisings for March 250 tons. The tributers returned 31¼ tons of mineral in the past month.

FORTUNA.—Mine report dated February 27:—Canada Incosa Mine. In the 110 fathom level driving west of San Pedro's shaft the lode has improved in value, and has a promising appearance. Its present value is estimated at ¾ ton per fathom.—Los Salidos Mine. The lode in the 200 fathom level east of Taylor's engine shaft is split into branches and is unproductive. In the 105 east of Palgrave's shaft the lode is small and poor.

NEW CHARTERS TOWERS GOLD. — Report on company's property by Mr. George Cavey: The property is situated on the Charters Towers Gold Field, Queensland, within two miles of the Charters Towers and Hughenden railway, and about 90 miles from the seaport of Townsville. The main road of the district passes close to the mine. Area 25 acres, held under lease direct from the Crown, for a term of 21 years, at a rental of £1 per acre, per annum, renewable without fine or forfeiture. The area held can be increased to 50 acres if desired. The mine has been prospected and worked by a shaft sunk in the underlie to a depth of 450 feet. No. 1 level is opened at 275 feet, driven east 141 feet, and west about 250 feet, and the ground above stoped to a height of about 50 to 60 feet. The lode contains a highly-mineralised pyritic ore, the angle of the dip being about 45°. No. 2 level, at 355 feet, the lode is 3 feet wide, highly mineralised. 2786 tons 4 cwts. of ore, treated by an ordinary crushing battery, yielded 2100 ounces 7 dwts. 5 grains of free gold, leaving a large percentage of gold in the tailings. The Queensland Smelting Company (Limited) treated 337 tons 16 cwts. 1 qr. 5 lbs. of ore concentrates and slimes, yielding 1039 ounces 5 dwts. of gold, value 80s. per ounce, the average being over 3 ounces of gold per ton. The Magnesium Metal Company, Patricroft, near Manchester, treated 5 tons 17 cwts. of ore, which yielded 3 ounces 5 dwts. of gold per ton, value 80s. per ounce, and 7 ounces of silver per ton. 16 cwts. 3 qrs. 19 lbs. of concentrates yielded 3 ounces 5 dwts. of gold per ton, value 80s. per ounce, and 4 ounces of silver per ton. It is intended to sink a new underlie shaft from the outcrop on the course of the lode, so that levels can be opened at regular intervals, and the extensive orebody worked to better advantage. Suitable hoisting machinery will be erected at the new shaft, and requisite reduction works capable of treating from 500 to 2000 tons of ore per month. Within six weeks from starting the ore can be stoped out and the quartz raised to surface, while the necessary plant is being erected and the new underlie shaft sunk and connections made with the present workings. There is also a quantity of tailings, containing payable gold, which can be extracted when treated by a more effective method. The Charters Towers gold field has proved itself to be the most productive and profitable gold field in Australia, as the lodes are being proved to the great depth of over 2000 feet, with a progressive increase in the quality of the ore. Timber for mine and fuel, abundant and cheap, and water very plentiful. It is estimated that there are about 5000 tons of ore in sight, that will average 3 ounces of gold per ton, which at £4 per ounce should give a return of £60,000. The supply of ore is practically inexhaustible, and the only thing requisite to make this property a permanent dividend-paying investment, is the erection of a cyanide plant to treat from 500 to 2000 tons per month. I am of opinion that the necessary cyanide plant can be erected, and the works completed for treating the ore by the MacArthur-Forrest process for a sum not exceeding £5000. This property is known as the New Towers Extended, and has been in possession of some of the present owners from the t me it was first developed.

The balance sheet of the SOCIETE DE NICOL shows a deficiency of £41,760, the profits are £34,560 less, and the expenses £7200 more. The profit from the sales has fallen off from £80,000 to £56,000, and the interest on debentures has gone up £8640. Out of the profit balance of £56,420 the directors propose to appropriate £26,800 on depreciation account—£6800 to write off works in Europe, plant, machinery, &c., and £20,000 to be set aside to meet further depreciation on items where it may appear necessary to the council. This permits of only £1200 being carried over to the current year.

BAYLEY'S REWARD, No. 1 SOUTH.—Mining report, dated Jan. 7th: Main shaft. Main shaft (Gorrie's) sunk a further depth of 4 feet, total 156 feet from brace. Lode still continues in the shaft hard, strong, and well defined. Water is still increasing there, now being 1600 gallons per day. This, together with the hard nature and close-grained stone being sunk through, makes the sinking very slow. During the week I tried to let the shaft on contract, but the price asked was equal or above equal to what it is now costing, and I think the men are doing their best to sink all they can, but with the water, and hauling stone from the stopes, during which time they cannot work in the shaft, the loss of time is considerable. —Rise or Stopes. The work in the stopes from the rise has been continued. Have seen some very good stone similar to that discovered last week. The lode is in this place about 10 feet wide, apparently carrying gold all through, the course or heavy gold being chiefly on the front wall side. Taken all through I should judge it to be good battery stone, not rich, but should give fair average returns.—Mullock shaft, which is being sunk between the main or No. 1 and 2 shafts, is at present 49 feet. Total sunk for week 14 feet.—No. 2 Shaft, Bayley's Line. Contractors have only sunk for week 3 feet, full depth being 131 feet. The progress here is also very slow owing to the increase of water, which has now reached 1300 gallons. per day, which has broken the contract, their agreement being 1200 per day. They are timbering and making everything secure, previous to being paid up in full. If I can get them to sink a few feet further even at an increased price, I shall do so as the next 5 feet might increase the supply.—Machinery. On the 5th we gave the engine and battery a trial, and it all worked well. There is a little work to be done to the pump and pipes that draw the water from the dam to supply the battery. This we hope to complete to-day, and start crushing some part of to-morrow. We will start with the one shift, and as soon as everything is in proper working order, if we can raise water the other shifts will be employed.—Rain. Last night 70 points of rain fell, but it continued slowly, consequently, the greater portion was absorbed in the ground, but I estimate we have caught about 70.000 gallons, which will give us a very nice start.—W. H. Matthews.

— Mining report dated January 12:—Main shaft. Main shaft (Gorrie's) since last report, but little has been done towards sinking, the men, the first portion of the week, being engaged timbering, and the latter, hauling stone from the stopes, but sinking is now again resumed.—Stopes. The stopes continue to yield stone of fair value, gold being frequently seen in breaking.—Mullock shaft, has been sunk 11 feet, total being 60 feet, this in another fortnight should be connected with the stopes.—No.2 shaft (Bayley's line). Contractors have been timbering and completing the old contract. I have let them a new one to sink 17 feet at £4 per foot, at which increased depth I hope to obtain a much better water supply.—Machinery. As telegraphed to you on the 8th inst. the battery was started on that day, and has since been working full time without any trouble, up to the present we have crushed 60 tons. The stone passed through is not rich, but should be of fair value. Owing to this being the first crushing, and the plates new, which for a time will take the fine gold, it is difficult to judge as to what the stone will yield, however, I think it will prove payable.—Other work. We have a good deal of other work to do, such as flooring the battery house, erecting a shed over the engine, and several smaller things, which are being continued, and we shall also clean up the battery the latter end of the coming week, and, I hope, with satisfactory results.—W. H. Matthews.

CROWN REEF.—The directors' monthly report for January is as follows:—Mine. Number of feet driven, sunk, and risen, exclusive of stopes, 1437¾ feet; quartz mined, 16,774 tons; quartz on hand, at surface, January 31st, 9764 tons.—Mill. Number of days (24 hours) working 120 stamps, 29 4-24 days; tons crushed, 16,615 tons; tons crushed per stamp, per 24 hours, 4·747 tons; yield in smelted gold, 6·505 ounce 7 dwts.; yield per ton, 7 dwts. 19·936 grains.—Cyanide works (120 stamp works). Tons of tailings and concentrates treated, 12,321 tons; yield in smelted gold, 2960 ounces; yield per ton, 4 dwts. 19·315 grains; working cost per ton, 3s. 2·43d.; royalty cost per ton, 11·172d.; total cost per ton, 4s. 1·606d.—Old works. Tons accumulated tailings and slimes treated, 4314 tons; yield in smelted gold, 750 ounces 13 dwts.; yield per ton, 3 dwts. 11·521 grains; working cost per ton, 8s. 3 399d.; royalty cost per ton, 7·84d.; total cost per ton, 8s. 11·239d.—Expenditure and revenue. Working expenditure (120 stamp mill and cyanide works, 16,615 tons milled) To mining expenses, £14,213 15s. 2d. (cost per ton, 17s. 1·314d.); to transport expenses, £209 5s. 8d. (cost per ton, 3d.); to milling expenses, £2489 0s. 10d. (cost per ton, 2s. 11·953d); to cyanide expenses, £2546 14s. 3d. (cost per ton, 3s. 0·786d.); to general charges, £2019 2s. 9d. (cost per ton, 2s. 5·165d.); to mine development redemption, £1032 9s. (cost perton, 1s. 2·913d.)—£22,510 7s. 8d. (cost per ton, £1 7s. 1·154d.); to profit for month, £8905 4s. 8d. (cost per ton, 10s. 8·637d.)—£31,415 12s. 4d. (cost per ton, £1 17s. 9·791d.). Accumulated tailings and slimes, 4314 tons treated. To cyanide expenses, £1927 12s. 11d. (cost per ton, 8s. 11·240d.); to clean up old mills, £91 6s. 8d. (cost per ton, 5·081d.)—£2018 19s. 7d. (cost per ton, 9s. 4·321d.); to profit for month, £252 14s. 6d. (cost per ton, 1s. 2·059d.); total, £2271 14s. 1d. (cost per ton, 10s 6·380d.).—Revenue. By gold account, 6505·35 ounces from 120 stamp mill, £22,180 19s. 2d. (value per ton, £1 6s. 8·399d.); 2960·00 ounces from 120 stamp cyanide works, £9234 13s. 2d. (value per ton, 11s. 1·392d.); total (9465·35 ounces), £31,415 12s. 4d. (value per ton, £1 17s. 9791d.). By gold account, 750·65 ounces from old cyanide works, £2134 14s. 1d. (value per ton, 9s. 10·759d.); 44·55 ounces from old mills, £137 (value per ton, 7·621d.); total (795 20 ounces), £2271 14s. 1d. (value per ton, 10s. 6·380d.).—Summary. Profit from 120 stamp mill and cyanide works, £8905 4s. 8d.; profit from accumulated tailings and slimes, £252 14s. 6d.; total profits for month, £9157 19s. 2d.—Capital expenditure. To mine development, £1701 5s. 9d.; to machinery and plant, £2131 7s. 1d.; total, £3832 12s. 10d. Total expenditure for month—revenue account, 120 stamp mill and cyanide works, £22,510 7s. 8d.; revenue account, accumulated tailings and slimes, £2018 19s. 7d.—£24,529 7s. 3d.; capital account, £3832 12s. 10d.; total. £28,362 0s. 1d.—General. The following are the particulars of the lineal development work done for the month:—Third level, Rising and sinking winzes, 72 feet. Fourth level. Driving on south reef west, 84 feet 6 inches; driving on main reef leader west, 98 feet; crosscutting, 19 feet. Fifth level. Driving on south reef east and west, 386 feet; driving on main reef leader east and west, 421 feet; rising and sinking winzes, 157 feet; crosscutting 16 feet. Sixth level. Sinking winzes, 27 feet 3 inches; sinking No. 1 main shaft, 41 feet; sinking No. 2 main shaft, 28 feet; crosscutting, 27 feet. Seventh level, Sinking main incline shaft, 61 feet; total, 1437 feet 9 inches. The tonnage of ore exposed by the above works amounts to 31,427 tons. The 120 stamp mill and cyanide works have been in full operation during the past month.

CHAMPION REEF.—Fortnightly report of Captain James Rowe, superintendent, dated February 11: Garland's shaft. This has been sunk 6 feet 9 inches, total depth 855 feet 9 inches. Lode 2 feet wide, assaying 2 ounces 14 dwts. 3 grains of gold per ton. The 840 feet level north of shaft has been driven 29 feet 9 inches, total length 103 feet. Lode 3 feet wide, assaying 2 ounces 3 dwts. 3 grains of gold per ton. 840 south driven 39 feet, total length 119 feet 6 inches. Lode 3½ feet wide, assaying 1 ounce 4 dwts. of gold per ton. The 740 feet level north driven 33 feet 9 inches, total length 332 feet 3 inches. Lode 3 feet wide, assaying 1 ounce 15 dwts. 6 grains of gold per ton. Rise in back of level risen 17 feet 6 inches, total height 30 feet. Lode 4 feet wide, assaying 1 ounce 15 dwts. 3 grains of gold per ton. New winze below level (120 feet north of shaft) sunk 10 feet 9 inches. Lode 4½ feet wide, assaying 2 ounces 4 dwts. of gold per ton. The 740 south driven 24 feet, total length 247 feet 6 inches. Lode influenced by the dyke is 9 inches wide, assaying 6 dwts. 6 grains of gold per ton. The 630 feet level north of west crosscut driven 23 feet 3 inches, total length 498 feet. Lode influenced by the east and west dyke, and is without value. We are now engaged crosscutting east to see if any part of the lode is in that direction; this has been driven 7 feet. No. 4 rise in back of level risen 7 feet 3 inches, total height 40 feet 3 inches, and communicated with 530 No. 3 north winze. The 530 feet level north of west crosscut driven 30 feet 6 inches, total length 960 feet 9 inches. Lode 2 feet wide, assaying 1 ounce 18 dwts. 4 grains of gold per ton. No. 8 rise in back of level risen 18 feet, total height 24 feet 6 inches. This is communicated with 440 No. 6 north winze. No. 3 winze below level sunk 4 feet, total depth, 38 feet. This is communicated with 630 No. 4 north rise. No. 6 rise in back of 440 north risen 14 feet 3 inches, total height, 89 feet 6 inches. Lode, still influenced by east and west dyke, is 9 inches wide, assaying 1 ounce 9 dwts. of gold per ton. No. 6 winze below 440 north sunk 17 feet, total depth 52 feet 9 inches. This is communicated with 530 No. 8 north rise.—Ribblesdale's shaft. We have completed fixing bottom of plunger lift at the 540 feet level, and are now making preparations for bringing down rods, &c. The 540 feet level north of shaft has been driven 27 feet 3 inches, total length 371 feet, Lode 3½ feet wide, assaying 1 ounce 14 dwts. 12 grains of gold per ton. The crosscut east of 540 south of shaft has been driven 18 feet 6 inches, total length 56 feet 9 inches. About 45 feet we met with stringers of quartz, which appeared to be the back of the shoot on east part of lode. We have driven on these south of crosscut 3 feet, and find they have come together, forming a lode 9 inches wide, assaying 12 dwts. 8 grains of gold per ton. The 440 feet level south of crosscut east of 440 south of shaft has been driven 16 feet 9 inches, total length 187 feet. Lode 2 feet wide, assaying 1 ounce 1 dwt. 6 grains of gold per ton. Winze below level sunk 9 feet 6 inches, total depth 34 feet. Lode 1 foot wide, assaying 16 dwts. 4 grains of gold per ton. Incline rise in back of level risen 22 feet 6 inches, total height 112 feet 3 inches. Lode 2½ feet wide, assaying 1 ounce 11 dwts. 4 grains of gold per ton. New crosscut west of level driven 25 feet, and met with middle part of lode, which was found to be 3½ feet wide, assaying 1 ounce 18 dwts. 3 grains of gold per ton. We are continuing the crosscut farther west to meet with west part of lode. Incline winze below 440 north of east crosscut has been sunk 22 feet, total depth 139 feet 9 inches. Lode 4 feet wide assaying 1 ounce 14 dwts. of gold per ton. The 340 feet level north of crosscut east of 340 south has been driven 3 feet, total length 123 feet. Lode 1 foot wide, assaying 19 dwts. 8 grains of gold per ton. Incline winze below level sunk 26 feet, total depth 122 feet 6 inches. Lode 5 feet wide, assaying 1 ounce 13 dwts. 8 grains of gold per ton. No 2 winze below level sunk 5 feet 6 inches, total depth 37 feet. Lode much improved, is now 4 feet wide, assaying 18 dwts. 6 grains of gold per ton. The 240 feet level south of Garland's 240 north incline winze and south of Ribblesdale's shaft has been driven 20 feet, total length 36 feet. Lode 1½ foot wide, assaying 1 ounce 8 dwts. 3 grains of gold per ton.—Carmichael's shaft. We have resumed the sinking of this shaft below the 440 feet level on the lode. The shaft has been sunk 8 feet 9 inches below level. Lode 4 feet wide, assaying 1 ounce 18 dwts. of gold per ton. The 315 south of crosscut west of shaft has been driven 3 feet 9 inches, total length 78 feet 3 inches. The vein having almost disappeared, we have suspended driving of same, and and resumed the driving of the 315 crosscut west, which has been driven 19 feet 3 inches, total length 635 feet 6 inches. The strata is without much improvement.—Rowe's shaft. This has been sunk 8 feet 9 inches, total depth below the 415 feet level 33 feet 6 inches. Lode 2 feet wide, assaying 3 ounces 1 dwt. 12 grains of gold per ton. 415 feet level north of shaft driven 17 feet 9 inches, total length 145 feet. Lode 1 foot 3 inches wide, assaying 2 ounces 15 dwts. 6 grains of gold per ton. Winze below 415 south of shaft sunk 11 feet 6 inches, total depth 37 feet. Lode 3 feet wide, assaying 1 ounce 11 dwts. 3 grains of gold per ton.—Stopes. Dalyell's shaft. New stope in bottom of 620 north of north winze cut 13 fathoms 4 feet. Lode 2 feet wide, assaying 1 ounce 8 dwts. of gold per ton. Stope in bottom of 620 south of south winze cut 6 fathoms 2 feet 9 inches. This is suspended. Stope in bottom of 620 north of winze cut 13 fathoms 2 feet. Lode 2 feet wide, assaying 1 ounce 3 dwts. 5 grains of gold per ton. Stope in back of 620 north of 530 north winze, cut 10 fathoms 1 foot. Lode 2½ feet wide, assaying 1 ounce 10 dwts. of gold per ton. Stope in back of 620 north of Garland's 530 south winze. This is suspended. Stope in back of 620 north of north rise cut 29 fathoms 1 foot 6 inches. Lode 5 feet wide, assaying 1 ounce 10 dwts of gold per ton. Stope in back of 530 north of north rise cut 13 fathoms 3 feet 3 inches. This is suspended. Stope in bottom of 440 north north of north winze cut 6 fathoms 3 feet 6 inches. Lode 3 feet wide, assaying 1 ounce 15 dwts. of gold per ton. Stope south of winze cut 7 fathoms 5 feet 9 inches. Lode 5 feet wide, assaying 1 ounce 12 dwts. of gold per ton. Stope in bottom of 440 south of south winze cut 1 fathom 3 feet 6 inches. Lode 1 foot wide, assaying 1 ounce 8 dwts. of gold per ton. Stope north of winze cut 6 fathoms 2 feet. Lode 1½ foot wide, assaying 1 ounce 16 dwts. of gold per ton. New stope in back of 390 south of shaft cut 5 fathoms 4 feet 9 inches. Lode 1½ foot wide, assaying 1 ounce 12 dwts. of gold per ton.—Garland's shaft. New stope in back of 630 north of No. 1 north rise cut 7 fathoms 5 feet 3 inches Lode 3½ feet wide, assaying 2 ounces 2 dwts. of gold per ton. New stope in back of 530 north of No. 6 north rise cut 1 fathom 4 feet 6 inches. Lode 3 feet wide, assaying 1 ounce 12 dwts. of gold per ton. New stope in back of 530, north of No. 5 north rise, cut 13 fathoms 1 foot 3 inches. Lode 3 feet wide, assaying 1 ounce 15 dwts. 3 grains of gold per ton. Stope in back of 440, north of south rise, cut 3 fathoms 4 feet inches. This is suspended. Stope in back 440 north of rise, south of west crosscut, cut 19 fathoms 1 foot 3 inches. This is suspended. New stope in back of 440, north of No. 5 north rise, cut 6 fathoms 1 foot 3 inches. Lode 6 feet wide, assaying 1 ounce 12 dwts. 12 grains of gold per ton Stope in back of 440, south of No. 1 north rise, cut 8 fathoms 5 feet 3 inches. This is suspended. The stope in the back of the 440 feet level south south of No. 2 north rise, cut 5 fathoms 2 feet 3 inches. Lode 3 feet wide, assaying 2 ounces of gold per ton. Stopes north of rise cut 18 fathoms 4 feet 6 inches. This is suspended for a time. Stope in back of 440 north of No. 3 north rise cut 14 fathoms. This is suspended for a time. New stope in back of 440 south of No. 5 north rise, cut 8 fathoms 9 inches. Lode 2 feet wide, assaying 2 ounces 1 dwt. of gold per ton. Stope in back of 340 north of south rise cut 6 fathoms 4 feet 3 inches. This is suspended. Stope in back of 240 north of No. 2 north rise cut 24 fathoms 2 feet 6 inches. Lode 3½ feet wide, assaying 2 ounces 4 dwts. of gold per ton. Stope in back of 240 south of No. 1 north rise, cut 6 fathoms 4 feet 9 inches. Lode 2 feet wide, assaying 1 ounce 15 dwts. of gold per ton.—Ribblesdale's shaft, Stope in back of 340 south of No. 2 south rise cut 18 fathoms 5 feet. This is suspended. Stope on fold in back of 340 north cut 8 fathoms. Lode 8 feet wide, assaying 2 ounces 10 dwts. of gold per ton. No. 1 stope in bottom of 240 north of north winze on fold cut 8 fathoms 6 inches. Lode 2½ feet wide, assaying 2 ounces 15 dwts. of gold per ton. No. 2 stope cut 4 fathoms 4 feet 9 inches. Lode 8 feet wide, assaying 2 ounces 5 dwts. of gold per ton. Stope in bottom of 200 north of 240 south rise cut 14 fathoms 1 foot 9 inches. Lode 1 foot 9 inches wide, assaying 1 ounce 2 dwts. of gold per ton. No. 1 stope north of No. 2 rise in the back of the 240 south cut cut 2 fathoms 2 feet 6 inches. Lode 6 feet wide, assaying 2 ounces of gold per ton, No. 2 stope cut 11 fathoms 2 feet. Lode 3 feet wide, assaying 1 ounce 10 dwts. of gold per ton. No. 2 stope, south of No. 1 rise in back of 240 south, cut 2 fathoms 1 foot 6 inches. Lode 4 feet wide, assaying 2 ounces 2 dwts. 10 grains of gold per ton. Stope north of No. 1 rise in back of 240 south cut 2 fathoms 2 feet 9 inches. Lode 2½ feet wide, assaying 1 ounce 5 dwts. of gold per ton. Stope in bottom of incline at 240 south cut 4 fathoms 2 feet 3 inches. Lode 1 foot 6 inches wide, assaying 1 ounce 8 dwts. of gold per ton. This is suspended for a time, and rock drill put to drive level south of stope. The above stoping is for January month. —Returns. During January month 3900 tons of quartz were stamped, which produced 5346 ounces of gold. 980 tons of tailings were treated, which produced 289 ounces of gold, a total yield of 5635 ounces of gold.

NEW QUEEN.—The following fortnightly report has been received from the mine, dated Charters Towers, January 18:—I beg to submit to you my report on work done in your mine during the past fortnight; No, 3a level. Stoping has been continued over this level. The reef during the fortnight has been pinched, consequently very little has come from the stope.—No. 4 south level. Stoping has been carried on over this level on the footwall vein, the reef varying from 3 to 9 inches.—No. 5a south level. Stoping has been carried on over this level. Little progress has been made owing to the dangerous nature of the hanging-wall, which required a lot of timbering. This work has been completed, so better progress should be made next fortnight. The reef averages about 6 inches. —No. 1a underlie. A level has been opened to the south and formed for a distance of 45 feet, with about 1 foot of stone. The northern level from this point will be formed during the coming fortnight. These levels will in future be known as the No. 1 north and south levels on the No. 1a underlie shaft.—No. 4 formation. No. 2 south level has been extended a further distance of 7 feet, making it 62 feet. The ground has been very hard, with about 4 inches of reef in the face.—No. 2 north level. The leading stope has been driven in this level from the winze into the level face, a distance of 60 feet, and the level advanced a distance of 10 feet, making it 142 feet from underlie shaft, the reef varying from 6 to 14 inches.—Quantity of stone raised during the fortnight, No. 1a underlie, 82 trucks; No. 3a south level, 72; No. 4 south level, 52; No. 5a south level, 27; No. 4 formation, 129; total, 361 trucks.—(Signed) Wm. Henderson.

PESTARENA.—March 4: The 55 east on No. 1 lode still maintains its size and value, yielding 5 tons per fathom at 3 ounces per ton. At the 90 west the ore yields 1 ton per fathom at 1 ounce; the branch of ore having decreased in size it will probably be necessary to crosscut north to reach the ore passed through the level above. In the 140 west on No. 5 lode the lode is still very wide, and a little ore has come in on the hanging wall which shows signs of improvement. The points recently suspended will nearly all be resumed towards the end of the month.—Stopes. A stope at the 120 east, on Caunter, yields 5 tons per fathom at 1 ounce per ton, and one at the 55 gives 4 tons at 18 dwts. On No. 1 lode, two stopes at the 55 yield 4 tons at 1 ounce, and 12 tons at 2 ounces respectively. A stope at the 70 east gives 2 tons at 1 ounce 10 dwts., and one at the 70 west 5 tons at 2 ounces. The intermediate drive over the 90 east, on No. 1 lode is producing 3 tons per fathom at 15 dwts. — Stabioli. In the crosscut west from Morghen adit a little water is percolating through the rock, otherwise there is no change. In the Anza level, the lode is 1·80 metre wide, composed of graphitic schist.—Kint. A change has occurred in the rock in the Guja adit, being split up by "heads," making it easier for driving. In the Oro Secco end west the lode is now 80 centimetres wide and mixed with a little pyrites throughout, while its appearance is most promising.—Machinery. Except that the scarcity of water still effects the efficiency of the hoisting and crushing, the machinery has been kept in its normal state of repair.—Millstone. All the beds are now on the mine, and it is expected the transport of the runners will be finished by the 10th inst.—W. Henwood Trelease.

RHODESIAN MINING AND FINANCE.—The Rhodesian Mining and Finance Company (Limited) have received the following letter and cablegram from the agents of the Matabeleland Adventurers (Limited) at Bulawayo:—Letter dated January 30: "Marlborough reef. As mentioned in my letter of the 11th, we got the contractors to make cuttings and trenches in different parts of the ground, with the result that on the north-east portion of the property a reef, 2½ feet wide, was exposed, and panning marvellously; we have had an assay made, which returned over 16 ounces to the ton, as per certificate enclosed herewith. The reef being on the surface, and having every appearance of a pocket or chimney, we thought it advisable to delay cabling you until we saw how it would turn out in the solid. The contractors are now sinking on it. We shall visit the property every day, and I think we shall in a week or so be able to tell what it is likely to turn out. If this reef goes down in its present form it will be a perfect marvel, and outshine everything else in Matabeleland."—Cablegram dated March 3: "Marlborough block. At the 40 feet level the reef is 2 feet wide, and still continues to assay 16 ounces to the ton. Forwarding samples by to-morrow's mail." This is one of the properties bought by the Rhodesian Mining and Finance Company (Limited) from the Matabeleland Adventurers (Limited).

SOUTH AUSTRALIAN PETROLEUM FIELDS.—Mr. Crosbie, the manager, writes on January 30 and February 7: We are still prospecting out here, and shoving the drilling ahead as fast as possible. We have got two nice new wells; one is pumping over two barrels a day, and the other is holding out at about 5 maunds a day. This is on the Minbym property. I have just received a letter from Mr. Haley, from Barongoh, who states he has struck a nice show of oil in his No. 6 on the new road; he is greatly delighted with the prospect of its being the biggest well on the property. I hope to make some more good strikes inside a month from now. We have struck a good well in our No. 87. It is about half a mile away, in the jungle, where no man ever operated for oil before. I am afraid to say how large it is at present, until I pump it for three or four days.

WHITE FEATHER MAIN REEF.—Interesting letters have just been received by the company from the mine. The ore obtained from the two shafts, and from the drive at the 90 feet level, amounts to 365 tons, which is estimated to run 2 ounces to the ton throughout. The manager reports that the reef in the water shaft averages 2 feet 6 inches to 3 feet solid gold-bearing stone all the way down and that the quantity of of stone to be taken out is practically unlimited. He considers it a 3 ounce reef all through. He also reports that there is sufficient stone in sight to warrant erection of 40 head of stamps. The quality of the quartz is considered to be first-class battery stone, containing free gold not too fine for ordinary battery conditions. At the bottom of the water shaft, a depth of 130 feet, the reef is bigger, and is going down strong and solid with coarse gold. Sinking operations are stopped at this shaft pending the arrival of pumps, in consequence of the strong influx of water. Operations in the meanwhile are being conducted at the 100 feet level, where the reef is very strong. The manager further reports: "The reef is not a specimen reef, or a phenomenally rich one, but it is a true fissure lode, which experts agree will live down to any depth, and likely to improve in quality the deeper it is sunk upon." The directors are carefully considering the question of machinery, and have obtained estimates thereupon; but, in view of the possibility of an arrangement for amalgamation with a rich adjoining property, they have deferred decision for a few days.

LINARES.—Mine report, dated February 27: Pozo Ancho Mine. The 200 fathom level driving east and west of No. 276 winze, on Warne's lode. Owing to the increase of water, driving has been temporarily suspended in these two ends. The lode in the 178, west of Warne's crosscut, is large and promising, easy for driving through, and yielding good lumps of ore, and is valued at 1½ ton per fathom. —The 200 south of Peill's engine shaft. We have started this new crosscut to communicate with No. 276 winze. The work will be pushed on with all possible speed. In the 200 west of Peill's engine shaft the lode is small and of no actual value. In the 155 west of the same shaft the lode is small and poor. No. 276 winze sinking below the 155 fathom level valued at 1 ton per fathom. The lode is large and open, and turns out good lumps of ore. The stopes continue to yield well.—Works at surface: These are kept on very regularly.—Machinery. The machinery is in good working order. Estimated raisings for March, 200 tons.—Tributers' returns. The tributers' returns amounted to 105½ tons of ore in the past month.—Los Quinientos Mine: Taylor's engine shaft. In the 185 east the lode has improved in value, and looks promising, estimated at ½ ton per fathom. The lode in the 165 east has slightly declined in value. The ground is easy for driving through. Valued at ½ ton per fathom. In the 150 east the lode is small and poor. The lode in the 130 east contains a little ore, but not sufficient to value. Vicente's winze sinking below the 150 fathom level is going down through a large and powerful lode, and is valued at 2 tons per fathom. Estimated raisings for March, 150 tons. The tributers returned 20½ tons of mineral in the past month.

The transfer office of the GEORGE AND MAY GOLD MINING COMPANY (LIMITED) will be removed on Monday from Warnford-court to 7, Great St. Helen's, E.C.

BAYLEY'S REWARD.—Report dated January 7: Sylvester shaft during the week has been sunk a further depth of 6 feet, total now being 343 feet.—100 feet level. Lode is at present from 5 to 6 feet wide. This is a continuation of our old 100 feet stopes, only further south, so that in future it will be called the 100 feet stopes, as formerly.—Gordon shaft. No. 1 intermediate stopes continue to yield stone of fair grade.—South drive. Lode is 4 feet wide, and has returned some very nice gold during the week.—Begelhole shaft, north and south stopes. Begelhole shaft continues to yield stone of average value, at times exposing good gold.—Cockshott shaft. Have discontinued driving the north drive for the present, and resumed sinking the shaft. Present depth, 66 feet from brace. Lode fully 5 feet wide. Quartz strongly iron stained.—Everard shaft, north drive, 211 feet. No change to report.—Crosscutting lode. Have again resumed crosscutting the lode, which will be continued at various points from the north drive.—Stopes. The stopes between the air and Everard shafts, have, during the week, yielded very good stone indeed, and are at present looking fairly well. Lode 5 feet wide, at present showing good gold freely.

— Report dated January 12: Sylvester shaft, 100 feet level. At the 100 feet stopes stone is being raised of fair grade, and going straight to the battery.—Gordon shaft. Stope at the No. 1 intermediate still yielding stone of average value.—South drive, 50 feet level. Lode 4 feet wide, in which gold is frequently seen.—Begelhole shaft. Stopes still continue to return the usual class of stone. Cockshott shaft has been sunk 5 feet, total 71 feet. Lode about 4 feet wide, of very promising material.—Everard shaft. North drive from Everard shaft advanced 12 feet, total now being 223 feet. Apparently now getting towards the end of the big blow, there being patches of mullock making in the face.—Crosscut in lode. The crosscut, which has been driven through the lode between Everard and McCulloch shafts, proves the lode to be at this point 23 feet wide. A second crosscut will now be driven between this and Everard shaft to prove the width of the lode further south.—Air shaft. Have resumed driving the north drive from the bottom of the air shaft, lode at this point being 2 feet 6 inches wide, and should be fair battery stone.—Stopes, Everard shaft. The stope from the Everard shaft has yielded some very rich stone, equal to any we have had previously therefrom. Lode is from 5 to 6 feet wide, fair battery stone, and at times returning patches of very rich stone indeed.

BRITISH BROKEN HILL PROPRIETARY COMPANY.—Mining manager's report for the week ending January 25: Blackwood (No. 1) shaft. 150 feet level. Main north drive lengthened 13 feet, total length 133 feet. Face in hard mullock, carrying quartz and patches of lead carbonate. Main south drive extended 13 feet, total length 101 feet. Face showing fair patches of lead ore. We picked out in driving 9 tons carbonate ore, averaging 41 per cent. lead and 5 ounces silver per ton.—Howell (No. 2) shaft. 300 feet level. Main north drive driven 7 feet, total length 117 feet. Face showing hard country intermixed with sulphides. Have started a north-easterly drive from a point 100 feet in above drive, and have extended same 5 feet through similar material to that in main north drive. This drive will be running somewhat across the lode at this point.—Marsh (No. 6) shaft. 2nd level. Have resumed work in No. 2 east crosscut and lengthened same 8 feet, total length 28 feet. Face in hard country. Uprise in end of south drive is looking fairly well. We have broken 16 tons, averaging 24 per cent. lead and 33 ounces silver per ton. Nothing was done in stope over back of main south drive during the week. In cleaning up we obtained 2 tons, assaying 25 per cent. and 30 ounces, and 1 ton 26 per cent. lead, and 22 ounces silver per ton. Stopes down winze are unchanged. We mined 17 tons, averaging 17 per cent. lead and 48 ounces, 36 tons 20 per cent. and 30 ounces, and 4 tons 26 per cent. lead and 21 ounces silver per ton.—Retallick's workings, 115 feet level. Have started an incline uprise in a southerly direction from mouth of No. 1 west crosscut from Retallick's shaft, and have risen same 12 feet, keeping to footwall side; roof carrying good grade lead ore. We broke 5 tons, averaging 55 per cent. lead and 7 ounces silver per ton. We are stoping copper stained carbonates from sides of north drive off winze at point 20 feet below 115 feet level. We obtained 15 tons, averaging 24 per cent. lead and 34 ounces silver per ton. The assays for the week vary from 6 to 65 per cent. lead, and from 3·5 to 157·1 ounces silver per ton.

CUMBERLAND GOLD.—January 4: I beg to submit my report for month of December. No. 5 level north. This level was driven 370 feet by December 15. Another contract has been let for a further 50 feet at 35s. per foot. Bunches of ore have been visible for the last 20 feet in the formation, and we have been daily expecting to come upon a regular reef; but the ore still continues broken in the face. The quality of the ore, what there is of it is good, an average sample having assayed 4 ounces 12 dwts. pure gold. To improve the ventilation for further driving in this level, a contract was let to sink a winze 297 feet north of No. 2 shaft to obtain a current of air through the old stopes from No. 6 level. I expect to hole through at a depth of 65 feet. When completed the ventilation thus secured should prove sufficient to drive No. 5 level 100 feet further.—No. 4 level north. There are now two wages men employed in this level opening it up to enable us to drive on the reef. In a few days I hope to be in a position to follow up the reef.—No. 2 level north. As mentioned in my last report, two men have been engaged on driving this level, with a view to improving the ventilation of our No. 2 shaft by connecting it with the old No. 1 North Company's shaft. I expect to hole through next week.—Leader. I have started two men in the straight shaft to prospect for the leader previously mentioned,—(Signed) Anthony Gallagher.

COROMANDEL.—Superintendent's report for fortnight ending February 9: Prospect shaft. 500 feet crosscut west has been driven 20 feet, and is now 309 feet 6 inches from shaft. The ground is rapidly changing its character, and during the week we have passed through a vein 1 foot wide, which carries quartz worth 2 dwts. of gold per ton. The crosscut is being continued.—500 feet level north. This drivage has been resumed, and is being carried through the dyke in a north-easterly direction; 26 feet have been driven during the fortnight, and another month's drivage should put us through the dyke.—440 level north. The crosscut east south of the crosscourse, after being extended a further 27 feet, has intersected the dyke. The machine has been brought back and started to drive south on the lode intersected by this crosscourse as reported in my last. Rise back 440 feet west of dyke has been advanced 8 feet by hand labour, total 58 feet 6 inches. Lode 1 foot 6 inches wide; is improving in appearance, and is worth by assay 1 ounce of gold per ton. 440 feet north on new shoot driven during the fortnight 35 feet, total 175 feet from crosscut. The lode has been intersected by a slide, and is at present in a disordered condition, the quartz being 1 foot wide, and assaying from 5 to 10 dwts. No. 2 rise back 440 feet on new shoot risen 20 feet, total 40 feet above level. Lode 2 feet wide of solid quartz, worth by assay 1 ounce 2 dwts. of gold per ton.—Milling. This is being proceeded with regularly, and if nothing unforeseen occurs the trial crushing should be completed by the end of the month.

CRAVEN'S CALEDONIA.—The following fortnightly report has been received from the mine, dated January 17: During the past fortnight two men have been engaged at the bottom of the Victoria and Queen shaft cutting out the ground at the back of the shaft, to give room to use the two compartments for hauling purposes, as we can only use one at present. Also two men have been beating out more ground for the shoots and ladder-way. I think that all this deadwork will be completed during the incoming fortnight. In the underhand stope from No. 9 level the reef is about 9 inches thick, and in the stopes over the No. 9 level the reef is about 7 inches. The drive on the fault in No. 8 level has been extended a further 17 feet, making a total of 121 feet from starting point. The haulage of quartz is 22 tons, total on surface 164 tons of which 60 tons have been carted to the mill, and we expect to clean up on Saturday the 19th inst. At the Victoria and Queen shaft, in the stope over the eastern level, the reef will average about the same as last reported on, and the haulage of quartz is about 41 tons, making a total of 216 tons towards the crushing started on 14th inst.—(Signed) G. Cabassi.

D'ARCY ESTATES.—Report dated January 26: — Main shaft sunk during the week 7 feet; total depth, 260 feet; no change.—Main shaft. Portion 54 sunk 5 feet through close-grained and very hard diorite; total depth, 71 feet. 50 feet of trenching made during the week on portion 54.

EAGLEHAWK CONSOLIDATED. — The following fortnightly report has been received from the mine, dated January 19: During the fortnight the contractors have driven the level south on the line of reef 40 feet at the 826 feet level in the Limited shaft, making the drive 150 feet in from the south side of the crosscut. We are through that shoot of stone where we got the gold; it is about 35 feet long from where we first got the gold to where it spliced out. There is plenty of reef all along the drive where we saw the gold reef 4 feet wide, and I think I can get a little gold in a "dish prospect," although it is barely payable. The reef in the drive at present looks as if it would improve; there is more metal in the stone, and it looks like a gold-bearing reef. The tributers, Smith and party, have got to work, and are getting a little gold. Harris's party have got a little better prospect of gold in the winze, but it is poor as yet. I think we cannot do better than continue the drive as far as the winze above or a little further, and see if we can find the shoot of stone we had in the winze above before we prospect the 1000 feet level.—(Signed) Thomas Hodge.

FRANK JOHNSON.—A circular states: The provisional agreement for sale of the assets of this company to the United Rhodesia Gold Fields (Limited), which was approved at an extraordinary general meeting of this company, held at Cape Town, on January 8 last, has now been confirmed at an extraordinary general meeting of the United Rhodesia Gold Fields (Limited), Under the terms of this agreement the company is parting with the whole of its assets (other than 50,000 shares in the Mashonaland (Central) Gold Mining Company (Limited), and will receive in exchange, on the transfer of the assets being completed, 200,000 shares of the United Rhodesia Gold Fields (Limited). The 50,000 shares in the Mashonaland (Central) Gold Mining Company (Limited), will, by arrangement with the Consolidated Gold Fields of South Africa (Limited), be retained by that company, who will, as and when they can realise the shares, liquidate the debentures and other liabilities of this company, and will distribute any balance amongst the shareholders. By this arrangement the 200,000 shares of the United Rhodesia Gold Fields (Limited), will be available without deduction for distribution, share for share, amongst the shareholders of this company,

GOLD FIELDS OF MYSORE.—Fortnightly report on prospecting operations, dated February 9: West Balaghat Block, No. 1 shaft. The 117 feet level north has been driven 5 feet 3 inches, total distance 149 feet 6 inches. The quartz is 1½ foot wide, and assays 13 dwts. 4 grains of gold per ton. The south level has been driven 3 feet 9 inches, total distance 131 feet. The quartz is 2 feet wide, and assays 14 dwts. 6 grains of gold per ton.—No. 2 shaft. The 100 feet level north has been driven 2 feet 9 inches, total distance 129 feet 2 inches. The quartz is 1 foot 6 inches wide, and assays 16 dwts. 1 grains of gold per ton. The south level has been driven 3 feet 9 inches, total distance 140 feet. The quartz is 1 foot wide, and assays 14 dwts. 10 grains of gold per ton.—No. 3 shaft. This has been sunk 3 feet 9 inches, total depth 145 feet. The lode is 2½ feet wide, and assays 12 dwts. of gold per ton. The 117 feet level north has been driven 1 foot 6 inches, total distance 65 feet. The quartz is 1 foot 6 inches wide, and assays 12 dwts. of gold per ton. The level south has been driven 5 feet, total distance 142 feet. The quartz is 1 foot 3 inches wide, and assays 8 dwts. of gold per ton.—No. 4 shaft. The 148 feet level north has been driven 2 feet 3 inches, total distance 53 feet. The quartz is 6 inches wide, and assays 11 dwts. 15 grains of gold per ton. The south level has been driven 1 foot 9 inches, total distance 43 feet 3 inches, The lode is 2 feet wide, and assays 11 dwts. 4 grains of gold per ton.—Road block, No. 3 shaft north of 2. The level south from bottom of shaft has been driven 12 feet 3 inches, total distance 173 feet 9 inches. The quartz is 1 foot 6 inches wide, and assays 5 dwts. of gold per ton.—North shaft. The north level from bottom of shaft has been driven 9 feet 6 inches, total distance 73 feet. The lode is 1 foot wide and assays 4 dwts. 8 grains of gold per ton. The south level has been driven 6 feet 3 inches, total distance 88 feet 6 inches. The quartz is 1 foot 3 inches wide, and assays 11 dwts. of gold per ton.—Ajjapalli block, shaft in trench. The 75 feet level north has been driven 1 foot 3 inches, total distance 7 feet 9 inches. The south level has been driven 1 foot 9 inches, total distance 5 feet 6 inches. Nothing has been done here since the 31st ult., as we have been unable to get coolies.

— Superintendent's report for fortnight ending February 11: South shaft. We have completed the cutting of top plat at the 380 feet level, and are now engaged cutting bottom plat. The 380 feet level north of shaft has been extended 4 feet 6 inches, total length 263 feet 7 inches. Lode 3 feet wide, carrying 14 inches of quartz, assaying 15 dwts. of gold per ton. The 385 feet level south extended 4 feet 1 inch, total length 274 feet 2 inches. Lode 3½ feet wide, carrying 16 inches of quartz on the hanging-wall, assaying 18 dwts. 12 grains of gold per ton.—Middle shaft. We have commenced retimbering this shaft from about 50 feet below the surface, and are making satisfactory progress.—Machinery. The compressor is almost completed, and we are now awaiting the arrival from Madras of some necessary pipes we have had to order to connect the boilers with the engine. The 20 head mill is erected, and we are awaiting the arrival of engine for same, which I hear has arrived at Madras, and will soon be delivered on the mine. Everything in this department is being pushed ahead as rapidly as possible.

HANNAN'S BROWN HILL.—Report of mining work for fortnight ending January 26: South shaft sunk to a total depth of 130 feet, advance 9 feet 6 inches.—Crosscut east on 60 feet level. Total length from south shaft 44 feet, advance for fortnight 21 feet.—No. 1 level north of south shaft. Total length 14 feet, advance 14 feet.—Costeaning. About 80 feet of trenching, varying from 2 to 6 feet in depth.—Timbering. The south shaft timbered with close sets for 25 feet, and one opening out set for crosscut west at 120 feet level. There remains 6 feet to complete timbering shaft down to 128 feet. As far as we have gone, the vein is opening up very well, and promises to be very rich.

KEMPINKOTE.—Fortnightly report of Captain Williams dated February 11: Garland's shaft has been sunk 9 feet 6 inches, total depth from surface 221 feet 6 inches. The ground in the bottom of this shaft is composed of schist, its strata running east and west. 245 north drive has been driven 33 feet, total distance from main crosscut 49 feet. Here we have a very good footwall; we are carrying about 5 feet of the lode, assaying 10 grains of gold per ton of stuff. There is no hanging wall to be seen. 245 south drive has been driven 23 feet, total distance from main crosscut 30 feet. We carried the footwall with us until we reached a point 24 feet from main crosscut, when we met with lode matter running into the footwall. The lode in the end is the full width of the drive, assaying 1 dwt. 5 grains of gold per ton of stuff.—183 south drive crosscut east. There has nothing been done in this since last report. No. 1 winze has been sunk 4 feet, total depth 51 feet. Lode in bottom full width of sink, assaying 15 grains of gold per ton of stuff. On the 1st of this month we met an increase of water, the sinking of the winze has, therefore, been suspended until the 245 south drive drains the same, when it will be communicated. Henty's shaft has been sunk 4 feet 3 inches, total depth from surface 269 feet 6 inches. The ground in the bottom is hard, with stringers of quartz running through it of no commercial value. 258 crosscut east has been driven 42 feet 6 inches, total distance from shaft 89 feet 6 inches. This drivage has been driven through a soft blue schist. To-day the end has entered a black schist, which is hard and jointy, with stringers of quartz running through it of no value. 173 north drive has been driven 4 feet, total distance from shaft 46 feet. We are carrying the hanging wall and about 5 feet of lode matter, assaying 5 grains of gold per ton of stuff.—Machinery. Our pitwork and surface machinery are working well.—Health. The health of the camp is very good.

MOSMAN GOLD MINES.—Mine manager's report for fortnight ending January 19: North Australian. Byerley level north. Reef 4 inches to 15 inches of varying quality.—Byerley level south. Reef 1 inch to 12 inches; some very good; some very poor.—Other stopes. Limited quantity; not high grade.—Peabody. Shaft sunk 8 feet, total depth 36 feet Water from old ground troublesome, but will shortly be overcome.—Wyndham. Shaft sunk 12 feet, total below 13 level 42 feet. Leader on south side 4 inches thick carrying mineral.—13 level north. Length 329 feet; reef 2 feet poor quality.—12 level north. No. 2 winze 32 feet; no reef.—12 level south 68 feet; reef 6 inches, fair quality.—9 level south. Reef of good quality, estimated at 3 ounces per ton; 18 inches to 30 inches thick.

MOUNT ZEEHAN (Tasmania.)—Manager reports for week ended January 22: Argent section. Main engine shaft. No. 4 lode, south rise, has been put up 9 feet, leaving about 6 feet to connect with winze. Lode is 1 foot 6 inches wide, with traces of galena.—Silver Queen block. No. 8 lode. Winze sunk 11 feet, total 34 feet. Lode full width of winze, carrying 6 inches of first-class ore on the hanging wall. No. 1 level north extended 15 feet, total 34 feet. Lode in the end is 3 feet wide, composed of iron pyrites, a little galena, and lode rock. Concentrator has milled 55 tons seconds from Argent section, which will produce 4 to 5 tons concentrates, and 101 tons seconds from Queen Extended tributers, producing 10 tons concentrates.

MOUNT LYELL.—The London board have received the following report from the Melbourne board, viz., for the week ending January 16: Indicator winze No. 2 tunnel. This winze has been sunk 3 feet, total 58 feet. The sinking is still in fair grade copper pyrites.—North drive No. 3 tunnel. This drive has been advanced 3 feet, total 13 feet. The country is baryta rock carrying a little silver.—No. 2 shaft No. 4 tunnel. The poppit legs have been put up over the shaft and the chamber timbered. The necessary excavations for the engine bed logs have also been made.—No. 1 rise south drive 50 feet level, engine shaft No. 4 tunnel. The contractors have risen a further height of 5 feet, total 8 feet. The country is tight schist rock.—No. 1 winze No. 2 crosscut 75 feet level engine shaft No. 4 tunnel. The underhand stope has been continued, and we have now commenced to sink so as to hole through to 100 feet level.—North drive 100 feet level, engine shaft No. 4 tunnel. The north drive has been advanced 3 feet, total 83 feet, driving in very solid pyrites.—No. 5 tunnel. The contractors have driven 10 feet total 955 feet. The country is conglomerate and sandstone, favourable ground for working. All work in connection with the clearing of the machinery site and construction of tramway in connection with the brick and sawmill plants is proceeding satisfactorily, the work being pushed ahead with all speed. The brick and saw mill plants are completed, and the building over the former has been erected. The necessary timber for most of the buildings is being sawn and expect that the brick plant will be running in a fortnight. Contractors for railway contract 23 are making good progress.

ROSE DEEP.—The first annual report contains a report by Mr. H. C. Perkins, in which he says that at the end of December the depth of the two shafts was 696 feet and 626 feet, "I am unable to state with certainty the ultimate depth of these shafts. At present I estimate that No. 1 will not exceed 850 feet and No. 2 725 feet. The completion of the shafts and underground development, I think, will occupy at least 18 months' time, at the expiration of which there should be ready for use a 100-stamp mill and cyanide plant, arranged so that it can be economically enlarged. I expect that the reduction plant will be regularly working in the latter end of 1896." He estimates that the expenditure during the next 18 months will be £200,000, or £180,000 more than the company has in hand.

TRANSVAAL GOLD EXPLORATION AND LAND.—Extracted from the general manager's advices, dated January 31: Mining Beta. The average thickness of deposit here was 10 inches. Nu-Theta tunnel.—The ground had become easier, and better progress was being made.—Chi. The low level adit had been put through and connection between the east and west sections formed.—Prospecting Good stone, showing visible gold, was still being found on the Blyde side of Columbian mill.—Chi Kameel's tramway. This had been completed, and working had been begun with satisfactory results. New cyanide works. These were approaching completion.

OOREGUM.—Superintendent's report for fortnight ending 12th February: Taylor's shaft sunk 10 feet 6 inches, total depth below the 660 feet level 51 feet 6 inches. Lode 3 feet wide, assay value 3 ounces 5 dwts. 8 grains. The 660 feet level south driven 18 feet, total 75 feet. Lode 2 feet 6 inches wide, value 4 ounces 7 dwts. 2 grains. The 560 feet level south driven 29 feet, total 335 feet. Lode 3 feet, value 1 ounce 2 dwts. 21 grains. No. 1 winze, 560 feet level south, sunk 7 feet 6 inches, total 79 feet 6 inches. Lode 2 feet, value 1 ounce 3 dwts. 22 grains. No. 2 winze, 560 feet level south, sunk 6 feet 6 inches, total 11 feet 6 inches. Lode 2 feet 3 inches, value 3 ounces 11 dwts. 22 grains. No. 3 winze, 460 feet level south, sunk 7 feet, total 81 feet 6 inches. Lode 4 feet carried, value 8 dwts. 17 grains. No. 4 winze, 460 feet level south, sunk 6 feet, total 43 feet. Lode 2 feet, value 5 dwts. 10 grains. The level north from back of No. 4 rise 280 feet level south driven 7 feet, total 61 feet. Lode 1 foot, value 1 ounce 1 dwt. 19 grains.—Wallroth's shaft sunk 7 feet 6 inches, total 981 feet 6 inches. Lode 5 feet wide, assay value 13 dwts. 2 grains. The 960 feet levels north and south have been resumed, and will be reported on at end of current fortnight. The 860 feet level south driven 21 feet, total 281 feet. Lode 1 foot, value 15 dwts. 10 grains. No. 1 winze 860 feet level south sunk 6 feet 3 inches, total 60 feet 9 inches. Lode 1 foot 6 inches, value 4 dwts. 8 grains. The 860 feet level north driven 9 feet, total 169 feet 6 inches. Lode very small, assay 9 dwts. 19 grains. No. 1 winze 860 feet level north sunk 5 feet, total 25 feet. Lode 1 foot, value 5 dwts. 10 grains. The 760 feet level south driven 14 feet 6 inches, total 396 feet 6 inches. Lode 9 inches, value 6 dwts. 12 grains. No. 2 winze 760 feet level south commenced, sunk 3 feet. Lode 1 foot, no sample. The 760 feet level north driven 16 feet 3 inches, total 243 feet 3 inches. Lode 8 inches, value 12 dwts. The 660 feet level south driven 29 feet, total 921 feet 6 inches. Lode 2 feet 6 inches, value 2 ounces 6 grains, communicated with Taylor's shaft. No. 3 winze, 660 feet level south, sunk 5 feet, total 104 feet 6 inches. Lode 1 foot 6 inches, value 9 dwts. 20 grains, communicated. No. 4 winze, 660 feet level south, sunk 1 foot, total 58 feet. Lode 6 inches, value 7 dwts. 15 grains. No. 5 winze, 660 feet level south, sunk 6 feet 6 inches, total 70 feet 3 inches. Lode 1 foot 6 inches, value 6 dwts. 12 grains. No. 6 winze, 660 feet level south commenced, sunk 8 feet 3 inches. Lode 3 feet 6 inches, value 10 dwts. 21 grains. The 660 feet level south, driving north from Taylor's shaft, driven 22 feet, total 57 feet. Lode 2 feet 6 inches, value 8 ounces 16 dwts. 5 grains. This drivage has communicated with the 660 feet level south from Wallroth's, and materially improved the ventilation at both shafts. No. 7 winze 560 feet level south sunk 5 feet 3 inches, total 87 feet 9 inches. Lode 2 feet 9 inches, value 2 ounces 1 dwt. 9 grains communicated. The 280 feet level north from fold driven 14 feet, total 128 feet 3 inches. Lode 2 feet, value 8 dwts. 17 grains, No. 4 winze 280 feet level north sunk 3 feet 8 inches, total 30 feet. Lode 1 foot, value 7 dwts. 15 grains. No. 4 winze 215 feet level north sunk 5 feet, total 85 feet 6 inches. Lode 1 foot, value 10 dwts. 21 grains. Low's shaft sunk 5 feet, total 678 feet 4 inches. The 610 feet level south driven 18 feet, total 167 feet. Lode very small; no sample. The 510 feet level south driven 10 feet 6 inches, total 371 feet 9 inches. Lode 6 inches wide, value 14 dwts. 4 grains. No. 1 winze 510 feet level south sunk 5 feet, total 74 feet 9 inches. Lode 3 inches, value 5 dwts. 10 grains.—Probyn's shaft. The 1050 feet level north driven 13 feet, total 35 from shaft. Lode 2 inches wide, assay value 12 dwts. The 950 feet level south driven 14 feet, total 352 feet. Lode pinched, no sample. No. 1 winze, 950 feet level south, sunk 4 feet, total 54 feet. Lode 1 foot, value 9 dwts. 49 grains. No. 1 winze, 950 feet level north, sunk 3 feet, total 97 feet. Lode 6 inches, value 15 dwts. 6 grains.—Stopes for month. Taylor's shaft, back of 460 feet level south, stoped 2½ fathoms. Lode 5 feet wide, assay value 1 ounce 1 dwt. 19 grains. Bottom of 360 feet level south stoped 92 fathoms. Lode 5 feet, value 1 ounce. Bottom of 280 feet level south stoped 8 fathoms. Lode 4 feet, value 1 ounce 4 grains. Bottom of level south from back of No. 4 rise. 280 feet level south stoped 8½ fathoms. Lode 2 feet, value 3 ounces 16 dwts. 5 grains.—Wallroth's shaft. Cutting plats at 960 feet level 12 fathoms. Back of 660 feet level south stoped 29½

fathoms. Lode 2 feet 3 inches, assay value 17 dwts. 23 grains. Bottom of 660 feet level north stoped 64 fathoms. Lode 2 feet 8 inches, value 11 dwts. 11 grains. Bottom of 560 feet level south stoped 7½ fathoms. Lode 4 feet 6 inches, value 2 ounces 7 dwts. 8 grains. Back of 560 feet level south stoped 15 fathoms. Lode 3 feet, value 2 ounces 3 dwts. 13 grains. Bottom of 560 feet level north stoped 8¾ fathoms. Lode 1 foot 6 inches, value 2 ounces 16 dwts. 14 grains. Bottom of 460 feet level south stoped 48¼ fathoms. Lode 2 feet, value 1 ounce 8 dwts. 21 grains. Back of 460 feet level south stoped 19 fathoms. Lode 2 feet, value 1 ounce 13 dwts. 17 grains. Bottom of 460 feet level north stoped 9¼ fathoms. Lode 1 foot 6 inches, value 2 ounces 3 dwts. 13 grains. Bottom of 360 south stoped 43 fathoms. Lode 2 feet 6 inches, value 1 ounce 11 dwts. 15 grains. Back of 360 south stoped ½ fathom. Lode 1 foot 6 inches, value 2 ounces 2 dwts. 11 grains. Bottom of 360 feet level north stoped ¾ fathom. Lode 2 feet 6 inches, value 1 ounce 1 dwt. 19 grains. Bottom of 215 feet level north stoped 6 fathoms. Lode 1 foot 9 inches, value 1 ounce 16 dwts. 11 grains.—Low's shaft. Bottom of 430 feet level south stoped 10 fathoms. Lode 2 feet 4 inches wide, value 1 ounce 16 dwts. 11 grains. Back of intermediate level north, back of 200 feet level south stoped 5¾ fathoms. Lode 1 foot 3 inches, value 1 ounce 2 dwts. 21 grains.—Probyn's shaft. Bottom of 650 feet level south stoped 3½ fathoms. Lode 10 inches wide, value 16 dwts. 8 grains. Back of 650 feet level south stoped 3¾ fathoms. Lode 2 feet wide, value 6 dwts. 12 grains.—Exploratory work: Wallroth's shaft. The crosscut east from 760 feet south driven 6 feet 9 inches, total 53 feet 9 inches. The crosscut west from 760 feet level south driven 8 feet 9 inches, total 52 feet 9 inches. The crosscut east from 460 feet level north driven 2 feet, total 26 feet 3 inches. The crosscut east from 360 feet level north driven 29 feet 6 inches, total 39 feet 6 inches. No discoveries in either of the foregoing crosscuts. The crosscut east from 280 feet level south driven 41 feet 9 inches, total 244 feet 9 inches. At a distance of 226 feet a lode was intersected 1 foot 6 inches wide, well defined and gave by assay 6 dwts. 12 grains of gold per ton. The strata in crosscut is mineralised, and letting out water freely, therefore thought it advisable to continue it for further proof before starting levels north and south on the lode intersected.—Munday's lode explorations. The 280 feet level south driven 12 feet, total 103 feet. Lode 3 feet wide, assay value 9 dwts. 19 grains.—Probyn's shaft. The crosscut east from 450 feet level south driven 27 feet, total 438 feet 6 inches. No discovery. During the month of January we crushed 4072 tons of quartz, which produced 4353 ounces of bar gold; in addition to this, 4668 tons of tailings were treated, which yielded 1008 ounces of gold. Total return, 5361 ounces of gold.

MINING IN CORNWALL AND DEVON:

NOTES ON MINING IN THE WEST.

(BY OUR SPECIAL CORRESPONDENT).

THE impending changes at Dolcoath continue to attract a large amount of interest, and there is a good deal of speculation as to the details of the scheme which the executive hope to put before the shareholders at the meeting on Tuesday week. There is no question now as to the reliability of the rumours which have been current during the last week or two, though there is considerable doubt as to the precise form of the scheme which will be proposed, and the amount of money which is likely to be forthcoming. An important circular, probably the most important that has been issued in connection with Cornish mines for very many years, was sent to the shareholders in Dolcoath on Saturday. It is so weighty a document that we need offer no apology for reproducing it in full:—

Dolcoath Mine, March 1, 1895.

You will remember that at the last meeting you were informed that a fall of ground had taken place at New East Shaft, above the 412 fathoms level, which we had hoped to have cleared in a few weeks, but, unfortunately, another fall occurred further up the shaft, and carried away the timbers which we had put in to secure it, previous to building the proposed concrete arches. We found on examination that the run was so extensive that the safest plan was to sink a new shaft in the granite to the north of the lode below the 364 fathom level. A contract has been let to do this work by boring machines at £15 per fathom, and we calculate it will take about six months to accomplish. Owing to New East shaft having been idle throughout the quarter, and the drawing at the engine shaft being also interfered with on account of sending down timber and putting in concrete arches to make that shaft secure, our returns of tin have been considerably interfered with, and a considerable loss will consequently ensue from this quarter's working. After very careful consideration, we are strongly of opinion that a new perpendicular shaft should be sunk to the south of the present workings; this would enable us to work the mine much more economically, and to raise the tin at a much less cost than at present. We should also, in all probability, be able to largely increase our returns, and the proposed expenditure would make the mine practically safe from any further runs.

The question of raising the necessary capital for the purpose of sinking such shaft, and providing the necessary machinery, is receiving our most careful consideration. In due course we shall lay before you our recommendations, and we hope to be in a position to make a statement to you on the matter at the next meeting of the adventurers. We are pleased to be able to state that the mine is still looking very well, and in the eastern part in the neighbourhood of the eastern shaft, the prospects have considerably improved.

The conversion of Dolcoath into a Limited company will not be accomplished without opposition. Many of the more conservative Cornish mine adventurers do not look upon the idea with favour, and are already pointing out many disadvantages which they believe will result from an abandonment of the old Cost-book principle. It is feared by some that the cost of the new shaft and the very extensive machinery and plant which will be required will be so great that by the time this has been provided, and the allowance made for the value of the present shares, there can be very little margin for working capital, unless the total capital is very considerable. It is estimated that the sinking of the shaft and the equipping of it properly will not leave a very big balance from £100,000. These are, however, matters of detail which will naturally have very keen attention devoted to their consideration by so business-like a body of men as the adventurers of Dolcoath, whose forthcoming meeting is sure to be exceptionally interesting. The general feeling is in favour of the adoption of the Limited Liability system, if the company can be put on a proper financial basis; and if the executive have made up their minds to a definite plan of action, they and their friends will be much more than sufficient to meet any opposition which may present itself.

East Pool meeting will be held on Monday, and although we suppose they will hardly have been able to make both ends meet in these hard times, there will be no necessity for a call, as they fortunately have a little nest-egg in the shape of a balance in hand. The mine is said to be looking better.

Wheal Basset is not yet in fork. They have had one or two mishaps since they started to fork, but the water is now being diminished, and it is hoped the men will be able to resume work in a few days.

In spite of recent relinquishments, hope has by no means been abandoned at Wheal Kitty. They are busily engaged in the sinking of the Wheal Vottle shaft, and the development of that part of the sett which adjoins West Kitty, where the appearance of the ground is very encouraging. Flat rods are being utilised to deal with the water.

WANTED.

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Broad Street Avenue, London, E.C.,
6th March, 1895.

THE SHARE LIST in this Company will be CLOSED from 8th to 16th instant for the declaration and payment of the fourth Interim Dividend.

FRONTINO AND BOLIVIA (SOUTH AMERICA) GOLD MINING COMPANY (LIMITED).

AT a MEETING of the DIRECTORS of this Company, held this day, the following resolution was passed—viz.,
"That an Interim Dividend of 1s. per Share, free of Income Tax, be this day declared, payable on and after the 15th day of March, 1895, to the Shareholders on the Register of the Company on that day, and that the Transfer Books of the Company be closed from the 10th to the 15th March, 1895, both days inclusive.
By order of the Board,
J. JAMESON TRURAN, Secretary.
No. 184, Gresham House, Old Broad Street, London, E.C.,
March 4th, 1895.

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†§Greek (tw. sc'w)	—	Mar. 19	Mar. 16	Mar. 23
†§Norman, tw sc'w	—	—	—	Mar. 30
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The engines can be inspected on application to the Locomotive Superintendent of the company.
Tenders, endorsed "Locomotives," to be sent to the undersigned not later than Saturday, 16th March, 1895.
JOHN JONES, Secretary.
Cardiff, 27th February, 1895.

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One 15 inch Cylinder Horizontal Condensing Engine, 2 feet 6 inches stroke, working a Vertical Sawing Machine, with all appliances, complete.
One 7 h.p. Portable Engine.
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One 8 h.p. Portable Engine.
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Two 5 inch Air Winches.
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Copper Ore Crusher.
One 16 feet Brunton's Calciner, with Water Wheel.
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Any further information and particulars may be obtained by applying to Mr. George H. Eustice, Engineer, Hayle; or of Mr. A. H. James, the Purser and Manager, Botallack Mine, Saint Just, R.S.O., of whom permission to view the property may be obtained, and to whom Tenders must be sent on or before TUESDAY, the 19th day of March next.
The highest, or any Tender, will not necessarily be accepted.
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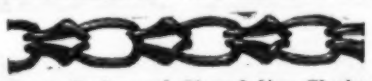

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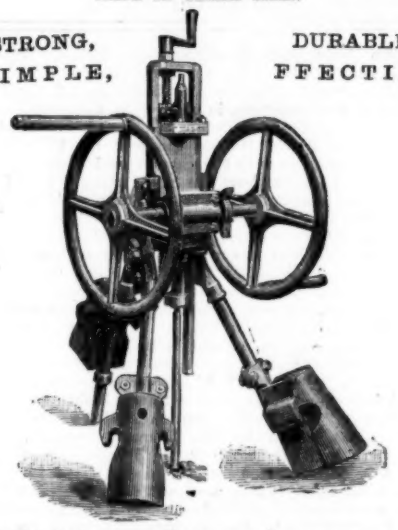

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MINING NOTES FROM JOHANNESBURG.

By H. BUSH, M.E.

(*Cabled Weekly*).

Knight's.

Development is being pushed ahead rapidly, and the mine is turning out a splendid one. The main incline shaft is now down 275 feet, and is being continued to the third level, which will be at a depth of 385 feet. This shaft is on the central section, the reef being about 2½ feet wide, assaying well, the average being about 25 dwts. On the northern section, the shaft is down about 125 feet. The reef is over 3 feet wide, and assays well. When the mill starts it is estimated there will be fully 200,000 tons of ore ready for treatment.

Princess Estate.

The mine development is being continued rapidly, and the ore is showing considerable improvement. In order to push the work along, the erection of a 10 drill compressor plant has been started. Vertical shafts are abandoned in favour of incline ones, which is considered by the management to be necessary for cheap mining. For the first time for many months a small profit was made in January, which is certainly very promising for the future.

Simmer and Jack.

Some interesting developments are shortly expected to take place in this most valuable mine. Sinking will shortly be started on the site of the Rand Victoria borehole, where the reef was struck at 2337 feet, being about 2 feet 6 inches wide, showing gold and assaying 2 ounces 1 dwt. 17 grains.

May Consolidated.

The erection of the new 30 stamp mill is being pushed ahead, as also the development, the mine looking exceedingly well. The output for last month showed an increase of 1000 ounces, and from present appearances this property has a great future.

Cassel Colliery.

The January output was 17,004 tons—an increase of 2846 tons on the December return.

Metropolitan.

This mine is looking well, and with the new precipitation process at work in connection with the cyanide works, is sure to give a good account of itself very shortly.

Wemmer

is looking well, and will steadily improve.

East Rand Proprietary.—The Anglo-French Exploration Company (Limited), as London agents for the East Rand Proprietary Mines (Limited), have received the following information from the head office in Johannesburg, in regard to the subsidiary companies in which the East Rand Company have a predominating interest:—St. Angelo Block. During the past month driving has been vigorously carried on with the aid of a small rock drilling plant in both east and west drives from the point where the reef was intersected by the incline shaft. The total distance driven is 117 feet, the reef being 3 feet wide, averaging over the full width 1¾ ounce. —Ramsay Block. After the intersection of the Ginsberg reef by the incline shaft it was decided to continue sinking a further 100 feet on the reef to obtain a substantial tonnage of "backs" before commencing to drive. Owing to the continual close proximity of the shaft to the dyke, the assays were not up to the normal value until the 100 feet had been completed, and drifting east and west on the reef commenced. In the east drift 17 feet from the shaft the reef is 42 inches wide and well defined, assaying over the full width 20 dwts. In the west drift 17 feet has also been driven, the reef being 4½ feet wide, the footwall section 18 inches wide, assaying 28 dwts.—Phœnix Block. The incline shaft to intersect the Ginsberg reef, as shown by the Phœnix borehole, is being rapidly pushed on, the total depth being now 66 feet.— —New Comet Gold Mining Company (Limited). The rate of development has lately been greatly increased, and every effort is being made to have a large reserve tonnage before the mill commences crushing on or about the 30th April. The estimated reserve tonnage at that date will be over 100,000 tons, or nearly two years ahead of the 40 stamp mill. The main shaft has passed the fourth level, in which driving is commenced, and the shaft will now be turned into an incline. Since passing through a dyke on the third level west in November last a rich leader, varying from 3 to 6 inches, has accompanied the reef, assaying from 2 to 7 ounces per ton, which materially enhances the value of the reef in this level. In regard to the rights which all shareholders in the East Rand Proprietary Mines Company, as registered in the books of the company on the 28th February, have in obtaining an allotment of the New Comet Gold Mining Company's shares, the London committee are sending out in the course of a few days application forms to each shareholder. These application forms, after being duly filled up, will have to be forwarded to the company's bankers on or before the 21st inst.

The directors of the Zeehan Montana Mining Company have declared a further interim dividend—viz., 4d. per fully paid share and proportionately on partially paid shares.

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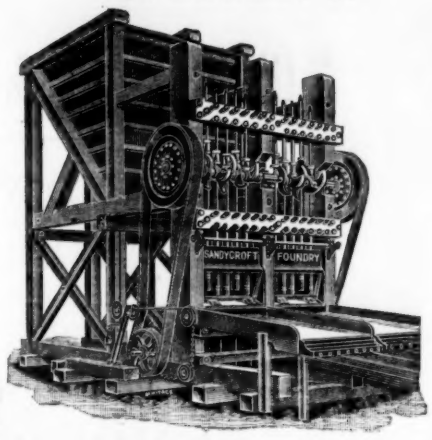

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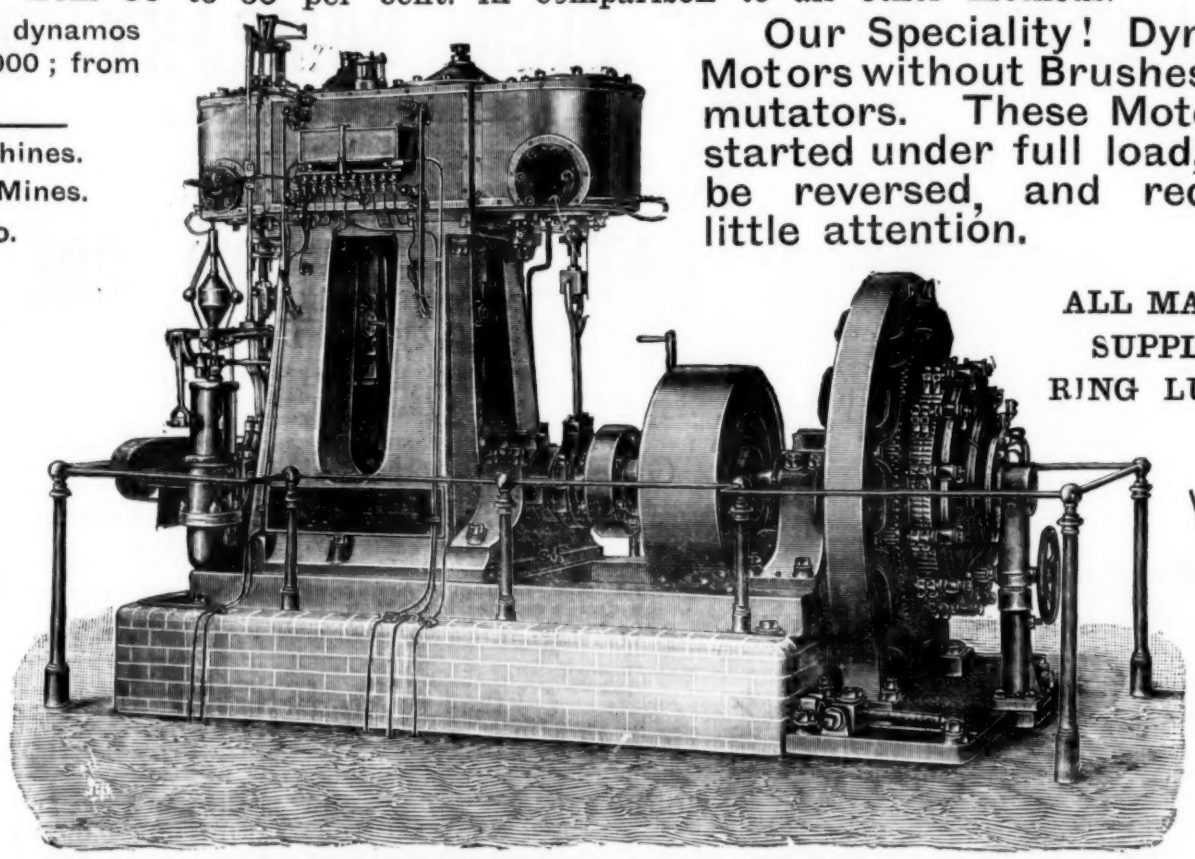

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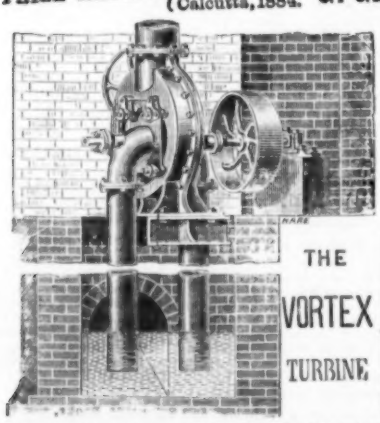

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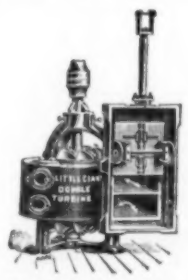

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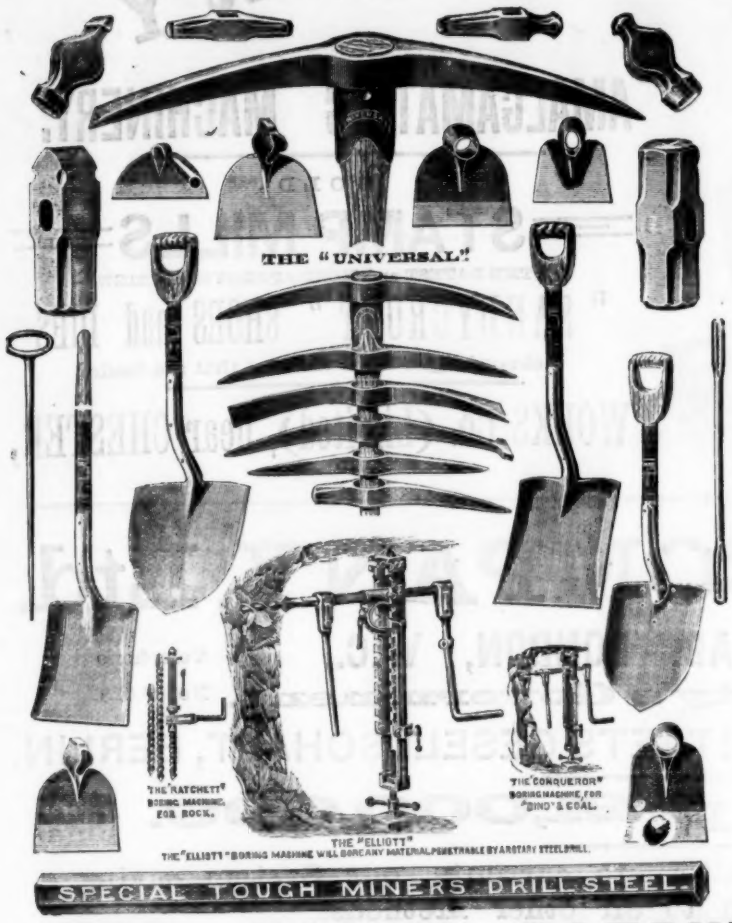
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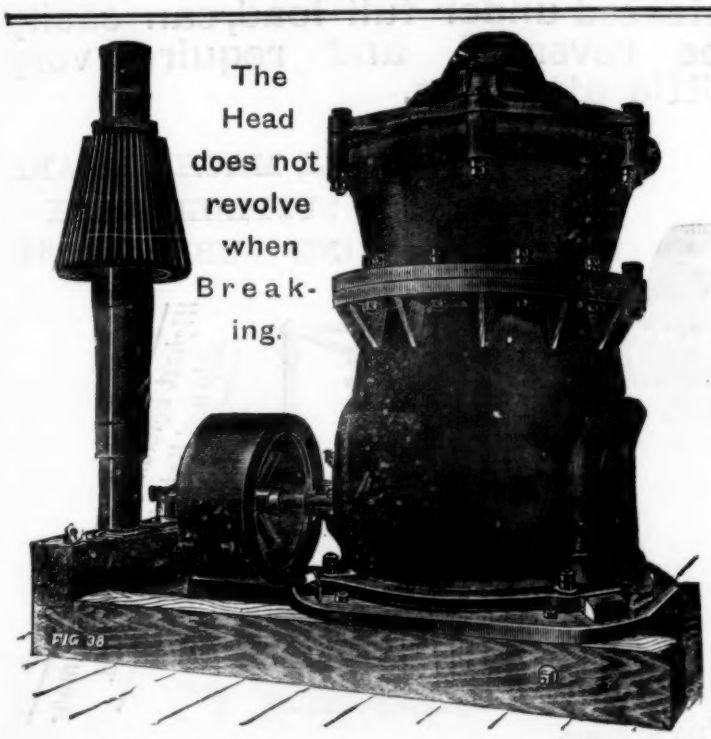

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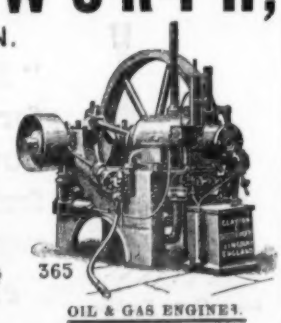
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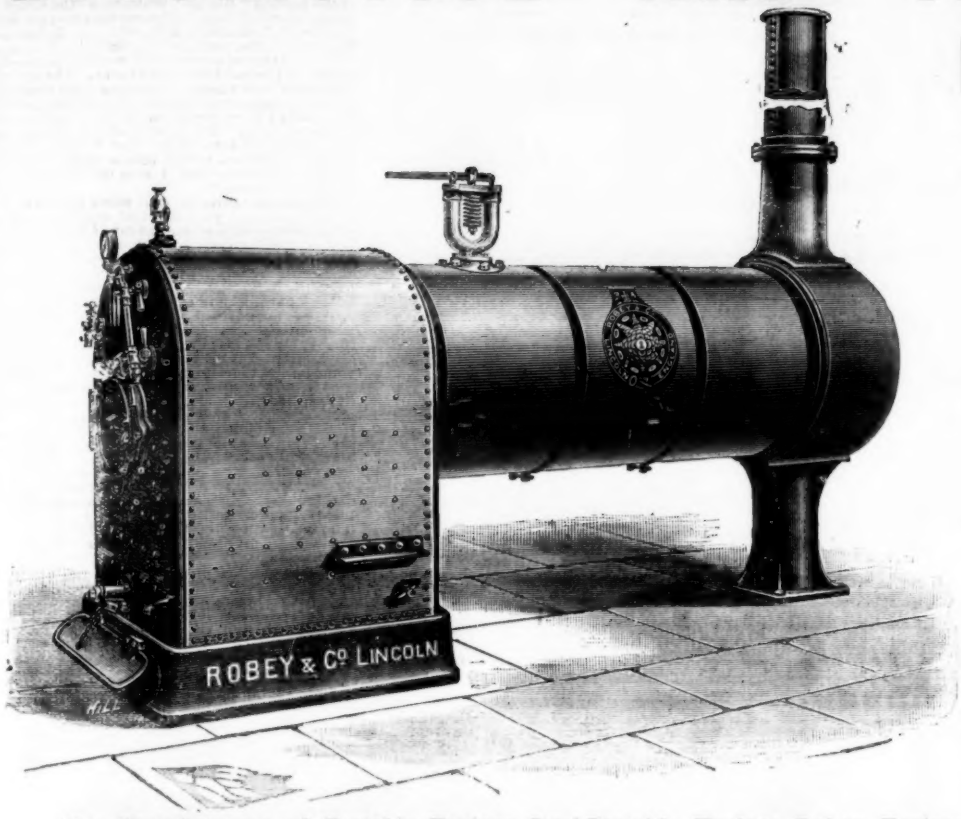

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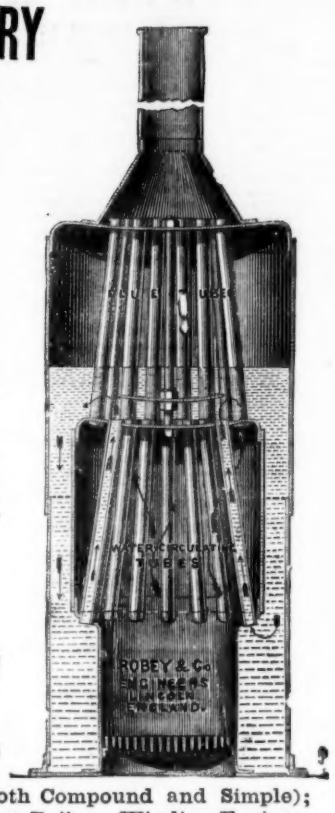

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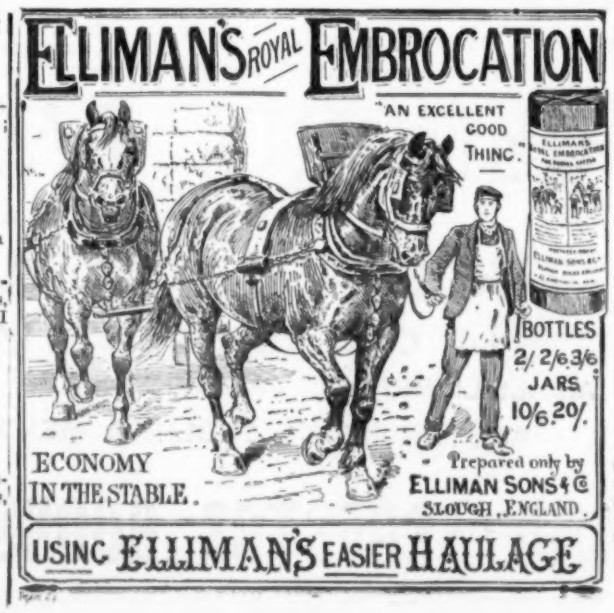

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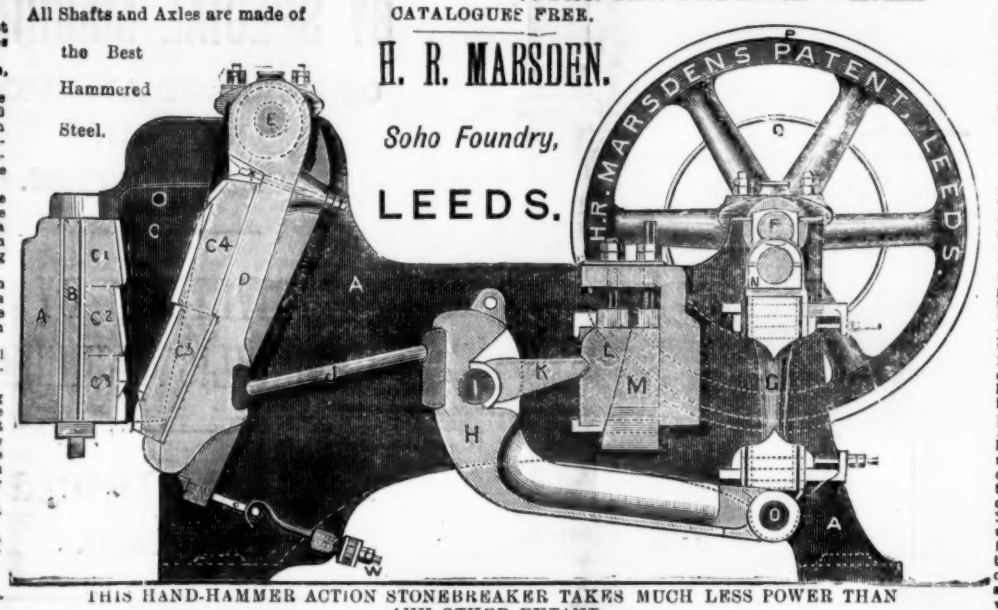

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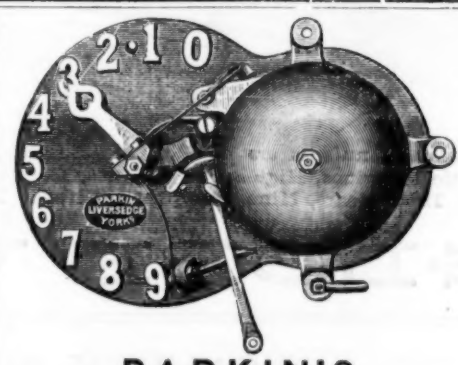

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